MTNC030620C1

B19 Canada:B05

Service Manual

Color Television

CT-36HL43G / CT-36HL43UG / CT-32HL43G / CT-32HL43UG /
CT-32HXC43G / CT-32HXC43UG

DX4

Panasonic®

1. Safety precautions

General guidelines

An isolation transformer should always be used during the servicing of a receiver whose chassis is not isolated from AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injuryfrom electrical shocks. It will also protect the receiver from being damaged by accidental shorting that may occur during servicing. When servicing, observe the original lead dress, especially in the high voltage circuit. Replace all damaged parts (also parts that show signs of overheating.)

Always replace protective devices, such as fish paper, isolation resistors and capacitors, and shields after servicing the receiver. Use only manufacturer's recommended rating for fuses, circuits breakers, etc.

High potentials are present when this receiver is operating. Operation of the receiver without the rear cover introduces danger for electrical shock. Servicing should not be performed by anyone who is not thoroughly familiar with the necessary precautionswhen servicing high voltage equipment.

Extreme care should be practiced when handling the picture tube. Rough handling may cause it to implode due to atmospheric pressure. (14.7 lbs per sq. in.). Do not nick or scratch the glass or subject it to any undue pressure. When handling, usesafety goggles and heavy gloves for protection. Discharge the picture tube by shorting the anode to chassis ground (not to the cabinet or to other mounting hardware). When discharging connect cold ground (i.e. dag ground lead) to the anode with a wellinsulated wire or use a grounding probe.Avoid prolonged exposure at close range to unshielded areas of the picture tube to prevent exposure to x ray radiation.

The test picture tube used for servicing the chassis at the bench should incorporate safety glass and magnetic shielding. The safety glass provide shielding for the tube viewing area against x ray radiation as well as implosion. The magnetic shieldlimits the x ray radiation around the bell of the picture tube in addition to the restricting magnetic effects. When using a picture tube test jig for service, ensure that the jig is capable of handling 50kV without causing x ray radiation.

Before returning a serviced receiver to the owner, the service technician must thoroughly test the unit to ensure that is completely safe to operate. Do not use a line isolation transformer when testing.

Leakage current cold check

Unplug the A.C. cord and connect a jumper between the two plug prongs.Measure the resistance between the jumpered AC plug and expose metallic parts such as screwheads, antenna terminals, control shafts, etc. If the exposed metallic part has a returnpath to the chassis, the reading should be between 240k Ω and 5.2M Ω . If the exposed metallic part does not have a return path to the chassis, the reading should be infinite.

Leakage current hot check

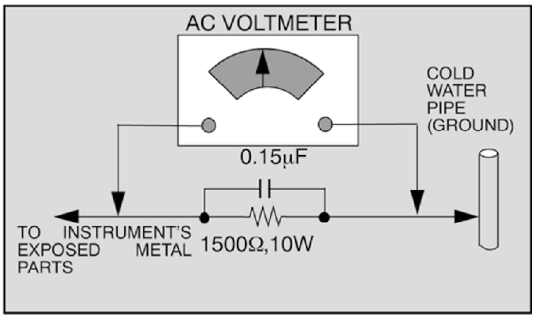
Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during the check. Connect a 1.5k Ω 10 watt resistor in parallel with a 0.15 μ F capacitor between an exposed metallic part and ground. Use earth ground, for example a water pipe.

Using a DVM with a 1000 ohms/volt sensitivity or higher, measure the AC potential across the resistor.

Repeat the procedure and measure the voltage present with all other exposed metallic parts. Verify that any potential does not exceed 0.75 volt RMS. A leakage current tester (such a Simpson model 229, Sencore model PR57 or equivalent) may be used in the above procedure, in which case any current measure must not exceed 0.5 milliamp. Ifany measurement is out of the specified limits, there is a possibility of a shock hazard and the receiver must be repaired and

rechecked before it is returned to the customer.

Hot check circuit



Insulation test

Connect an insulation tester between an exposed metallic part and A.C. line. Apply 1500VAC/ 60Hz for 1 second. Confirm that the current measurement is 0.5mA ~ 2.0mA. Repeat test with other metallic exposed parts.

X ray radiation

WARNING

The potential source of x ray radiation in the TV set is in the high voltage section and the picture tube.

NOTE

It is important to use an accurate, calibrated high voltage meter.

Set the brightness, picture, sharpness and color controls to minimum.
Measure the high voltage. With a 480i signal the high voltage should be 33.0 ± 1.0kV and with a 1080i signal the high voltage should be 33.0 (+ 1.0kV, - 2.0kV). If the upper limit is out of tolerance, immediate service and correctionis required to insure safe operation and to prevent the possibility of premature component failure.

Horizontal oscillator disable circuit test

This test must be performed as a final check before the receiver is returned to the customer. See horizontal oscillator disable circuit procedure check in this manual.

2. Service notes

NOTE

These components are affixed with glue. Be careful not to break or damage any foil under the component or at the pins of the ICs when removing. Usually applying heat to the component for a short time while twisting with tweezers will break the component loose.

Leadless chip component (surface mount)

Chip components must be replaced with identical chips due to critical foil track spacing. There are no holes in the board to mount standard transistors or diodes. Some chips capacitor or resistor board solder pads may have holes through the board,however the hole diameter limits standard resistor replacement to 1/8 watt. Standard capacitor may also be limited for the same reason. It is recommended that identical components be used.

Chip resistor have a three digit numerical resistance code, 1st and 2nd significant digits and a multiplier. Example: 162 = 1600 or 1.6k Ω resistor, 0 = 0 Ω (jumper).

Chip capacitors generally do not have the value indicated on the capacitor. The color of the component indicates the general range of the capacitance.

Chip transistors are identified by a two letter code. The first letter indicates the type and the second letter, the grade of transistor.

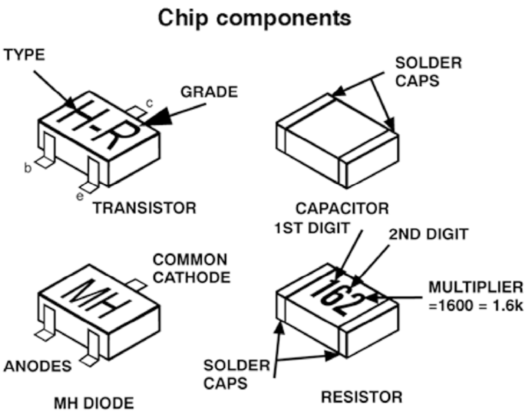
Chip diodes have a two letter identification code as per the code chart and are a dual diode pack with either common anode or common cathode. Check the parts list for correct diode number.

Component removal

1. **Use solder wick to remove solder from component end caps or terminal.**
2. **Without pulling up, carefully twist the component with tweezers to break the adhesive.**
3. **Do not reuse removed leadless or chip components since they are subject to stress fracture during removal.**

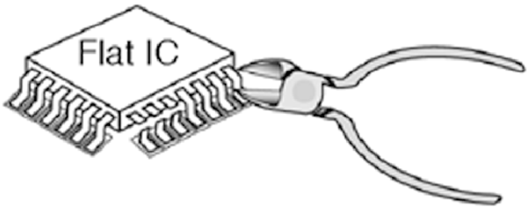
Chip component installation

1. **Put a small amount of solder on the board soldering pads.**
2. **Hold the chip component against the soldering pads with tweezers or with a miniature alligator clip and apply heat to the pad area with a 30 watt iron until solder flows. Do not apply heat for more than 3 seconds.**

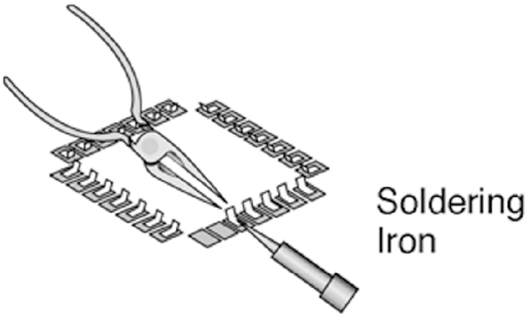

Chip components
TYPE
GRADE
c
b
e
TRANSISTOR
H-R
SOLDER
CAPS
CAPACITOR
COMMON
CATHODE
MH
ANODES
MH DIODE
1ST DIGIT
2ND DIGIT
MULTIPLIER
=1600 = 1.6k
162
SOLDER
CAPS
RESISTOR

How to replace flat ic (required tools)

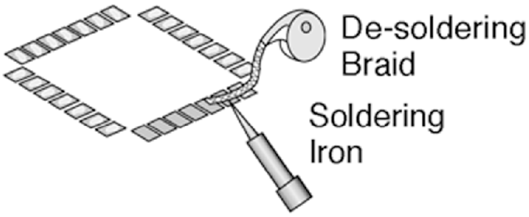
1. Remove the solder from all of the pins of a Flat IC by using a desolder braid



2. Put the iron wire under the pins of the Flat IC and pull it in the direction indicated while heating the pins using a soldering iron. A small awl can be used instead of the iron wire.

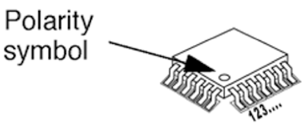

Soldering
Iron

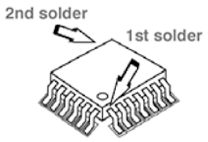
3. Remove the solder from all the pads of the Flat IC by using a de solder braid


De-soldering
Braid
Soldering
Iron

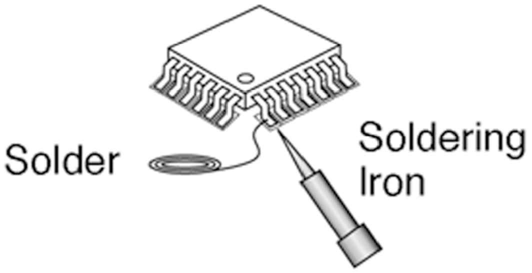
4. Position the new Flat IC in place (apply the pins of the Flat IC to

the soldering pads where the pins need to be soldered). Properly determine the positions of the soldering pads and pins by correctly aligning the polarity symbol

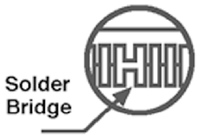


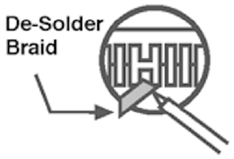


5. Solder all pins to the soldering pads using a fine tipped soldering iron



6. Check with a magnifier for solder bridge between the pins or for dry joint between pins and soldering pads. To remove a solder bridge, use a de solder braid as shown in the figure below





IMPORTANT

To protect against possible damage to the solid state devices due to arching or static discharge, make certain that all ground wires and CRT DAG wire are securely connected.

CAUTION

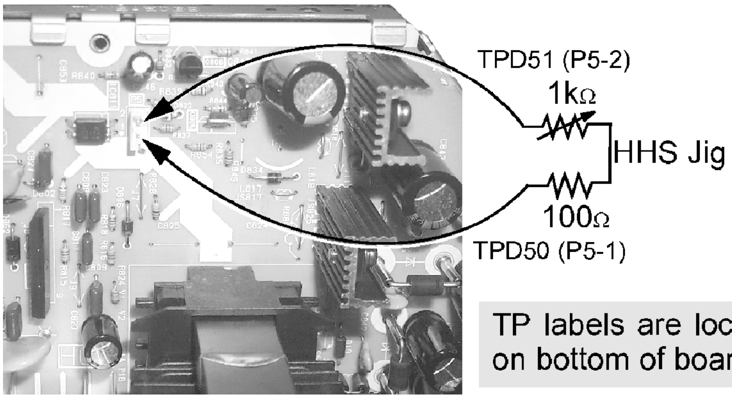
The power supply circuit is above earth ground and the chassis cannot be polarized. Use an isolation transformer when servicing the receiver to avoid damage to the test equipment or to the chassis. Connect the test equipment to the proper ground(hot) or (cold) when servicing, or incorrect voltages will be measured.

WARNING

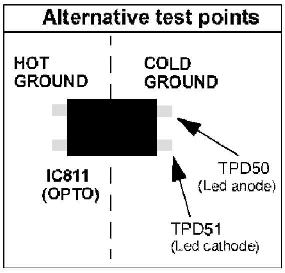
This receiver has been designed to meet or exceed applicable safety and x-ray radiation protection as specified by government agencies and independent testing laboratories.

To maintain original product safety design standards relative to x-ray radiation and shock and fire hazard, parts indicated with the symbol on the schematic must be replaced with identical parts. Order parts from the manufacturer’s partscenter using the parts numbers shown in this service manual, or provide the chassis number and the part reference number.

For optimum performance and reliability, all other parts should be replaced with components of identical specification.



TP labels are located on bottom of board



HORIZONTAL OSCILLATOR DISABLE CIRCUIT

This chassis employs a special circuit to protect against excessive high voltage and beam current. If, for any reason, the high voltage and beam current exceed a predetermined level this protective circuit activates and detunes the horizontal oscillatorthat limits the high voltage. The over-voltage protection circuit is not adjustable. However, if components indicated by the symbol on the schematic in either the horizontal sweep system or the over-voltage protection circuit itself are changed, theoperation of the circuit should be checked using the following procedure:

Equipment needed to check the disabled circuit:

1. **High voltage meter (0 ~ 50kV)**
2. **Variac or isolation transformer**
3. **1k ohm VR**
4. **D.C. ammeter**

PREPARATION

1. **Connect receiver to A.C. 120 Volts. Do not turn ON.**
2. **Connect HIGH VOLTAGE meter to 2nd anode (H.V. button).**

NOTE

Use cold ground for negative lead.

3. **Connect the ammeter serial from the flyback anode lead to the picture tube anode socket.**
4. **Prepare HHS jig to be connected between TPD50 and TPD51 on P-Board as shown above.**

PROCEDURE

1. **Open connector A17.**
2. **Turn power ON and apply a white pattern.**
3. **Set current within 50-100 μ A by changing the picture and bright controls.**
4. **Turn power OFF.**
5. **Connect HHS jig between TPD50 and TPD51 on P-Board as shown above (VR should be turn fully clockwise).**
6. **Turn power on.**
7. **Using the variable resistor slowly increase the current until the horizontal sync frequency abruptly increases indicating that the horizontal frequency is just beginning to pull out of sync. Maintain the current within 50-100 μ A bychanging the picture and bright controls**
8. **Observe the high voltage meter. High voltage should read less than 38.4kV.**
9. **Turn power OFF, remove HHS jig, HV meter, ammeter and connect A17 connector.**
10. **Turn power ON. Reset PICTURE and BRIGHTNESS controls. Confirm B+ 144V±1.5V with 120V AC applied.**

NOTE

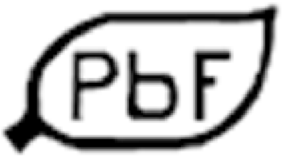
If high voltage is not within the specified limit the cause must be determined before the receiver is returned to the owner.

3. About lead free solder (PbF)

NOTE

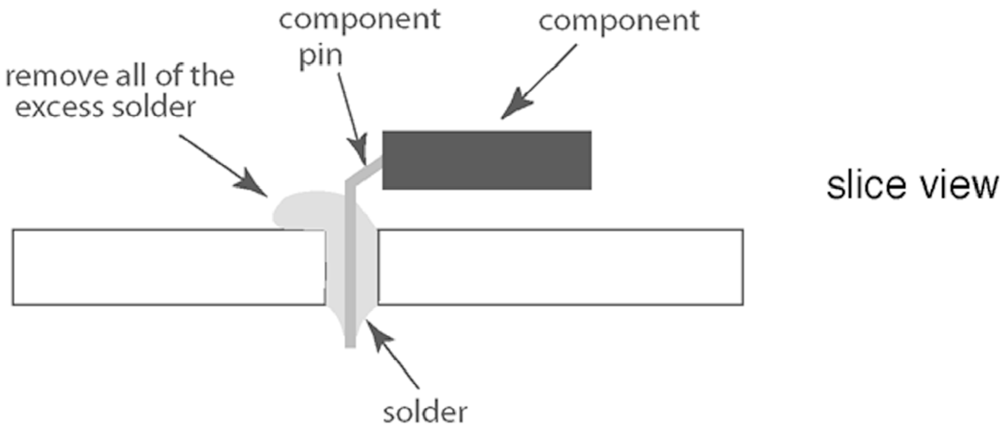
Lead is listed as (Pb) in the periodic table of elements. / In the information below, Pb will refer to lead solder, and PbF will refer to Lead Free Solder. / The lead free solder used in our manufacturing process and discussed below is (Sn+Ag+Cu). / Thatis Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For / service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be / used. / PCBs manufacturedusing lead free solder will have the "PbF" or a leaf symbol stamped on the / back of PCB.



CAUTION

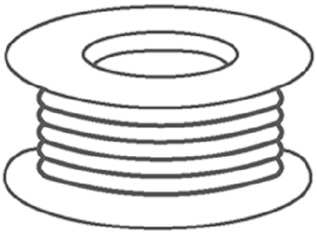
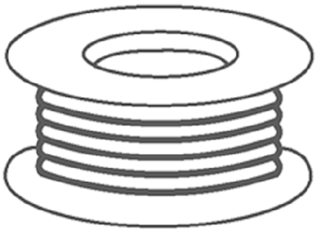
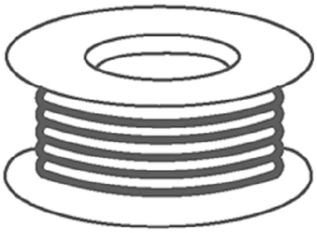
- **Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30 ~ 40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).**
- **Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C). / If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If thisis not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.**
- **After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side.**



component
pin
component
remove all of the
excess solder
slice view
solder

Suggested Pb free solder

There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also beused.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

4. Receiver feature table

FEATURE/MODEL	CT-36HL43G/UG	CT-32HL43G/UG
CHASSIS	AP410	AP409
MICRO	256K	
MENU LANGUAGE	ENG/SPAN/FR	
CLOSE CAPTION	X	
V-CHIP (USA/CANADA	X	
CHANNEL INFO BANNER	X	
VIDEO INPUT SKIP	SKIP	
CHANNEL COUNT	181	
PIP (1T), 2T PIP (2T), 2T SPLIT	2T SPLIT	
2RF	X	
REMOTE CONTROL (W/LIGHT)	EUR7603Z90	
CRT SUPPLIER	FLAT 4:3, MDDA	
FAMILY	DX4	
COMB FILTER	MOTION ADP, 3D Y/C	
HEC/VEC (X=BOTH)	X	
VM	X (DIGITAL)	
V/A NORM (X=BOTH)	X	
COLOR TEMP	X	
AIP	X	
PRESET/INPUT LABELING	X	
VIDEO PICTURE MEMORY	X	
DIGITAL SCAN RATE	1080i, 480p	
NTSC LINE DOUBLER	480p PROGRESSIVE	
MTS/SAP/DBX	X	
BUILT-IN AUDIO POWER	30W	
No. OF SPEAKERS	2 + SUBWOOFER	
BASS/BALANCE/TREBLE CONTROL	X	
AI SOUND	X	
SURROUND	X	
SPATIALIZER/BBE	BBE/VIVA	
A/V IN (REAR/FRONT)	4(3/1)	
A/V PROGRAM OUT	X	
AUDIO OUT (FAO: F, VAO:V)	F, V	
COMPONENT INPUT (Y, Pb, Pr)	2	
S-VHS INPUT (REAR/FRONT)	3(2/1)	
DVI/HDCP INPUT	1	
WEIGHT (KG/LB)	98KG/216LB	85.2KG/187.8LB
DIMENSIONS (W/D/H) mm	1049.5/742/895	894/685/809

Note:
Specifications are subject to change without notice or obligation. Dimensions and weights are approximate.

FEATURE/MODEL	CT-32HXC43G/UG
CHASSIS	BP409
MICRO	256K
MENU LANGUAGE	ENG/SPAN/FR
CLOSE CAPTION	X
V-CHIP (USA/CANADA	X
CHANNEL INFO BANNER	X
VIDEO INPUT SKIP	SKIP
CHANNEL COUNT	181
PIP (1T), 2T PIP (2T), 2T SPLIT	2T
2RF	X
REMOTE CONTROL (W/LIGHT)	EUR7603Z40 (GREY)
CRT SUPPLIER	FLAT 4:3, MDDA
FAMILY	DX4
COMB FILTER	3 LINE
HEC/VEC (X=BOTH)	X
VM	X (DIGITAL)
V/A NORM (X=BOTH)	X
COLOR TEMP	X
AIP	X
PRESET/INPUT LABELING	X
VIDEO PICTURE MEMORY	X
DIGITAL SCAN RATE	1080i, 480p
NTSC LINE DOUBLER	480p PROGRESSIVE
MTS/SAP/DBX	X
BUILT-IN AUDIO POWER	10Wx2
No. OF SPEAKERS	2
BASS/BALANCE/TREBLE CONTROL	X
AI SOUND	X
SURROUND	X
SPATIALIZER/BBE	BBE
A/V IN (REAR/FRONT)	4(3/1)
A/V PROGRAM OUT	X
AUDIO OUT (FAO: F, VAO:V)	F, V
COMPONENT INPUT (Y, Pb, Pr)	2
S-VHS INPUT (REAR/FRONT)	3(2/1)
DVI/HDCP INPUT	---
EPJ/HPJ/MISC	HPJ
WEIGHT (KG/LB)	85.2KG/187.8LB
DIMENSIONS (W/D/H) mm	894/685/809

Note:

Specifications are subject to change without notice or obligation. Dimensions and weights are

approximate.

5. Board description table

BOARD	CT-36HL43/UGCT-32HL43G/UG	CT-32HXC43G/UG	DESCRIPTION
A-BOARD	TNP2AH050	TNP2AH050AB	MAIN CHASSIS
D-BOARD	TNPH0466AE	TNPH0466AE	DEFLECTION
DV-BOARD	TNP2AA114	N/A	DVI BOARD
DG-BOARD	TNP2AA126AB	TNP2AA126AB	PIP PROCESSING, SPLIT, SEARCH,
P-BOARD	TNP2AA148	TNP2AA148	POWER SUPPLY
H-BOARD	TNP2AA127	TNP2AA127	REAR A/V JACKS
L-BOARD	TNP2AA139	TNP2AA139	CRT BOARD
K-BOARD	TNP2AA143	N/A	FRONT KEY BOARD
G-BOARD	TNP2AA142	TNP2AA141AA	FRONT A/V BOARD

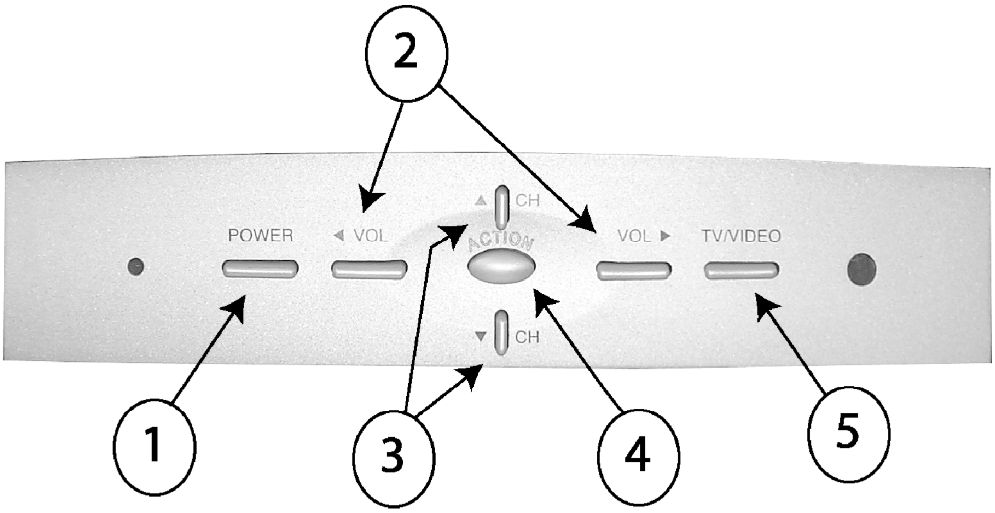
NOTE
When ordering a replacement board assembly, append an “S” to the board number

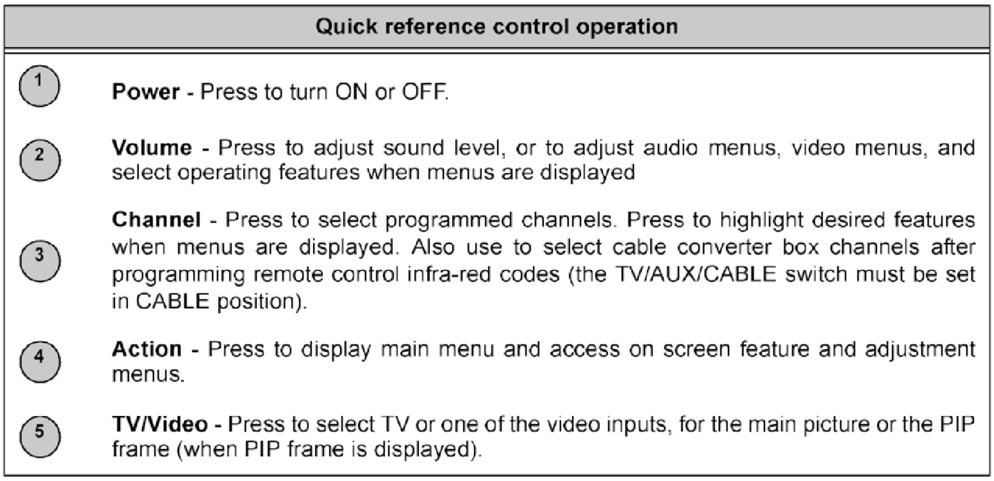
EXAMPLE
To order the A Board, the replacement board is TNP2AH050S

NOTE:
The DG-Board and DV-Board are non-serviceable boards, except for DV-Board audio connector and DVI conector. If any of these boards or DV-Board components are defective, replace it with a new one and take back the defectiver board to the service center.

6. TV Location of controls

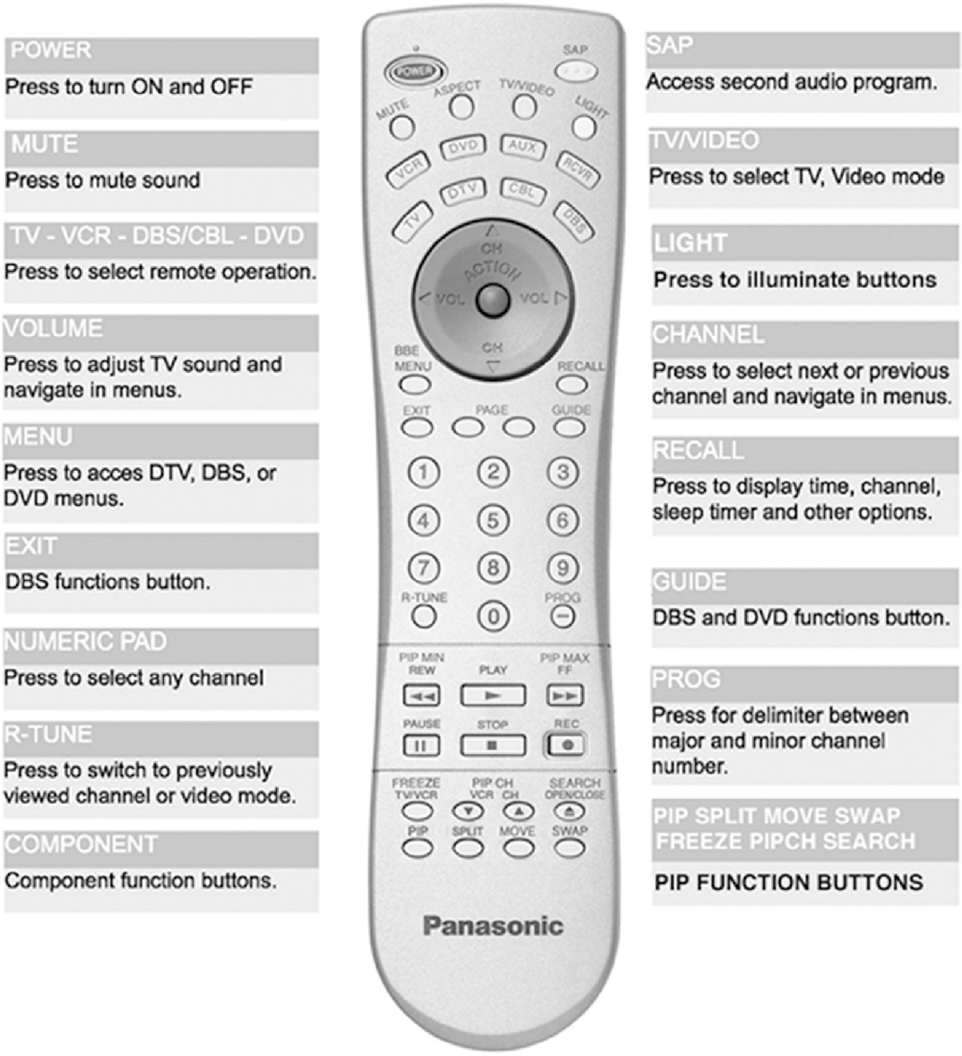
Panasonic
HDTV


2
POWER
◄ VOL
▲ CH
ACTION
▼ CH
VOL ►
TV/VIDEO
1
3
4
5



Quick reference control operation	
①	**Power** - Press to turn ON or OFF.
②	**Volume** - Press to adjust sound level, or to adjust audio menus, video menus, and select operating features when menus are displayed
③	**Channel** - Press to select programmed channels. Press to highlight desired features when menus are displayed. Also use to select cable converter box channels after programming remote control infra-red codes (the TV/AUX/CABLE switch must be set in CABLE position).
④	**Action** - Press to display main menu and access on screen feature and adjustment menus.
⑤	**TV/Video** - Press to select TV or one of the video inputs, for the main picture or the PIP frame (when PIP frame is displayed).

7. Location of controls (EUR7603Z90 remote)


POWER
SAP
ASPECT
TV/VIDEO
MUTE
LIGHT
DVD
AUX
VCR
RCVR
DTV
CBL
TV
DBS
CH
ACTION
VOL
VOL
CH
BBE
MENU
RECALL
EXIT
PAGE
GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
PROG
PIP MIN
REW
PLAY
PIP MAX
FF
PAUSE
STOP
REC
FREEZE
TV/VCR
PIP CH
VCR CH
SEARCH
OPEN/CLOSE
PIP
SPLIT
MOVE
SWAP
Panasonic

POWER
Press to turn ON and OFF

MUTE
Press to mute sound

TV - VCR - DBS/CBL - DVD
Press to select remote operation.

VOLUME
Press to adjust TV sound and navigate in menus.

MENU
Press to acces DTV, DBS, or DVD menus.

EXIT
DBS functions button.

NUMERIC PAD
Press to select any channel

R-TUNE
Press to switch to previously viewed channel or video mode.

COMPONENT
Component function buttons.

SAP
Access second audio program.

TV/VIDEO
Press to select TV, Video mode

LIGHT
Press to illuminate buttons

CHANNEL
Press to select next or previous channel and navigate in menus.

RECALL
Press to display time, channel, sleep timer and other options.

GUIDE
DBS and DVD functions button.

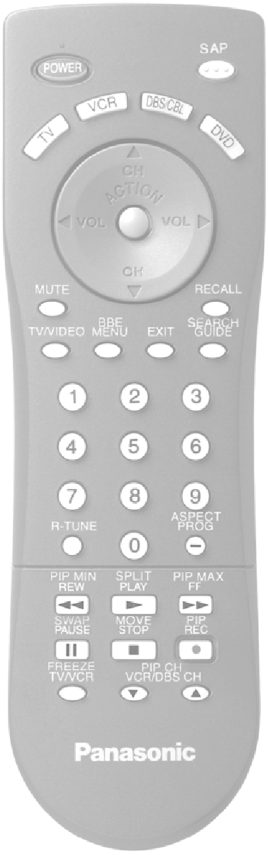
PROG
Press for delimiter between major and minor channel number.

PIP SPLIT MOVE SWAP FREEZE PIPCH SEARCH
PIP FUNCTION BUTTONS

Note:
For additional information about this remote please refer to the owner’s manual section remote

operation, listed on the parts list section.

8. Location of controls (EUR7613Z40 remote)


POWER
SAP
TV
VCR
DBS/CBL
DVD
CH
ACTION
VOL
VOL
CH
MUTE
RECALL
TV/VIDEO
BBE MENU
EXIT
SEARCH GUIDE
1
2
3
4
5
6
7
8
9
R-TUNE
0
ASPECT PROG
PIP MIN REW
SPLIT PLAY
PIP MAX FF
SWAP PAUSE
MOVE STOP
PIP REC
FREEZE TV/VCR
PIP CH VCR/DBS CH
Panasonic

POWER
Press to turn ON and OFF

MUTE
Press to mute sound

TV - VCR - DBS/CBL - DVD
Press to select remote operation.

VOLUME
Press to adjust TV sound and navigate in menus.

MENU
Press to acces DTV, DBS, or DVD menus.

EXIT
DBS functions button.

NUMERIC PAD
Press to select any channel

R-TUNE
Press to switch to previously viewed channel or video mode.

SAP
Access second audio program.

TV/VIDEO
Press to select TV, Video mode

CHANNEL
Press to select next or previous channel and navigate in menus.

RECALL
Press to display time, channel, sleep timer and other options.

GUIDE
DBS and DVD functions button.

PROG
Press for delimiter between major and minor channel number.

Note:
For additional information about this remote please refer to the owner’s manual section remote operation, listed on the parts list section.

9. Auto diagnosis feature

This receiver incorporates a new self diagnosis feature. With this new feature will be easier for the technician to detect the failures. There is a LED located by the keyboard on the front panel, this LED will start flashing when a failure is detectedby the circuits located in specific areas, depending on how many times the LED is flashing, this will tell you what circuit should be checked. Make a count of flashing and see the table shown below. Please use this feature effectively especially forintermittent problems.

SOS of front LED

NUMBER OF FLASHES	POSSIBLE CIRCUIT
1	+140
2	LOW D.C.
4	HHS
5	IC4511
6	IC4518

AFTER THE COUNT

Proceed to check that area, verify what board is the problem located, this way the area to check will be reduced until the failure is found.

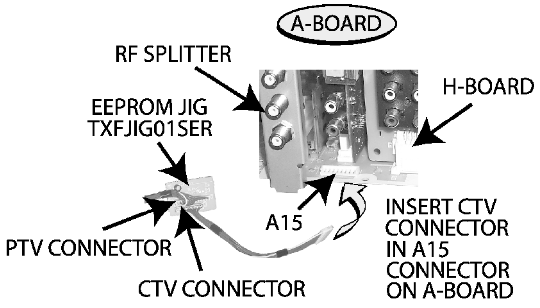
10. EEPROM copy jig

This CTV has a feature that allows to clone or back-up main EEPROM data adjustments from a CTV to other by connecting a jig to the CTV set. A jig part number TXFJIG01SER, is available through Matsushita/Panasonic Services.

Preparation:

To connect this jig, remove the lower back cover as instructed on disassembly for service section on this service manual and insert the jig into A15 connector located on the A-Board by the RF splitter. (See figure)

EEPROM copy jig connection


A-BOARD
RF SPLITTER
H-BOARD
EEPROM JIG
TXFJIG01SER
A15
INSERT CTV CONNECTOR IN A15 CONNECTOR ON A-BOARD
PTV CONNECTOR
CTV CONNECTOR

Procedure to copy data:

1. **Enter to service mode and display service menu.**
2. **Select "AREA" DAC and then press ACTION button on remote to enter. Press VOL right/left to select one of the following options then press ACTION:**
    - **Select ALL to copy all main EEPROM data**
    - **Select ADJ to copy only adjustment data.**
    - **Select FIX to copy only fix data**
3. **To copy data from main EEPROM to jig, select "IN → EX" DAC and press ACTION button on remote.**

4. **To copy data from jig to main EEPROM, select “EX → IN” DAC and press ACTION button on remote.**

11. Dissasembly for service

Back cover

Remove all the screws marked with an arrow (←) from the back of the receiver

NOTE

Screw configuration, type, and number of screws vary depending on the model of the receiver serviced and the application; various models are covered in this manual. Use same hardware when reassembling the receiver.

- 4 screws at the top edge of the receiver.
- 4 screw by the A/V jacks.
- 1 screw by the antenna jacks.
- 1 screw at the lower part of TV.
- 1 screw at each lower corner of the receiver.
- 1 screw by the retainer plate of the AC power cord.
- 1 screw by the A.C. cord assembly.

NOTE

Extensions for board connectors may be needed to take voltages on some boards, please see parts list section for part numbers in this service manual.

A-Board - Main chassis

The A-Board assembly rest on a chassis tray along with the D-Board.
Slide chassis tray out. Gently lift the tray and pull out. Disconnect plug connectors; release wire ties and holders as required for complete chassis removal.

1. **A-Board is secured to the chassis tray with screws.**
2. **The A-Board is mated to the D-Board by four flexible connectors: A4, A5, A6 & A7 (D4, D5, D6 & D7 on the D-Board, respectively). To remove either boards, unplug the connectors on the A-Board.**

NOTE

Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal

D-Board - Deflection

**The D-Board assembly rest on a chassis tray along with the A-Board.
Slide chassis tray out. Gently lift the tray and pull out. Disconnect plug connectors; release wire ties and holders as required for complete chassis removal.**

1. **D-Board is secured to the chassis tray with screws.**
2. **The D-Board is mated to the A-Board by four flexible connectors: D4, D5, D6 and D7 (A4, A5, A6 & A7 on the A-Board, respectively). To remove either boards, unplug the connectors on the A-Board.**

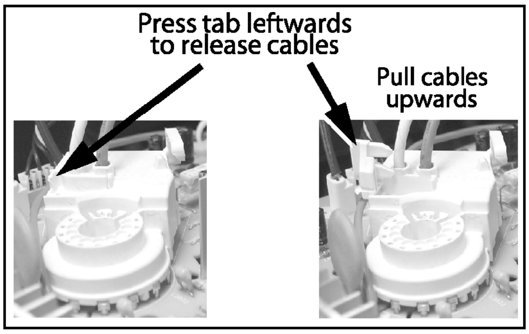
NOTE

Some tie-wraps that secure the wire dressings may need to be unfastened for chassis removal

L-Board - CRT output

**Plugs into the socket on the CRT neck.
To remove this board, first unplug the board from the CRT neck, then disconnect L1, L2 and L3 connectors, to disconnect the focus F1(red cable) & F2 (white cable) cables from the CRT socker, pull the tab and release the cables (see figure),finally disconnect the screen cable from the D-Board D16 (screen and heater).
To reinsert back the cables, remember the original position of cables, F1 (red cable) goes to A on the CRT socket and F2 (white cable) goes to B on the CRT socket.**

F1 and F2 cables release



To release screen GND cables from L-Board L10, L11 & L12 connectors, insert a wire in both sides of connector and pull upwards the cable, then remove the wire.

DG-Board

The DG-Board is assembled on the main chassis (A-Board) plugged at the A21, A22 and A23 (DG1, DG2 and DG3 respectively) connectors.

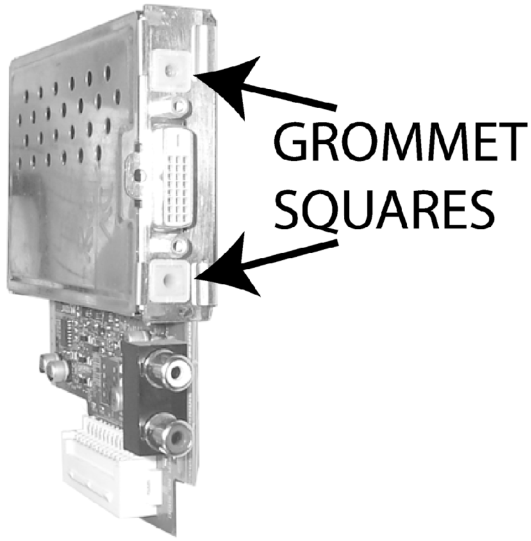
NOTE

This board is not-serviceable. / When removing this board pull carefully.

DV-Board (ONLY FOR HL MODELS)

1. **Plugs onto the A-Board at the A5 (DV1) connectors.**
2. **This board has two Grommet squares, be careful to do not screw too tight, otherwise this grommet screw hole will get stripped.**

Grommet squares on DV-Board



NOTE:
This board is non-serviceable. Except for JK002 (DVI AUDIO CONNECTOR) and JK002 (DVI CONNECTOR) / When removing this board pull carefully.

P-Board

Plugs onto the right side of the D-Board at D2, D11, D12 and D3 connectors (P2, P11, P12 and P3 on P-Board, respectively); First remove the screws that holds the metal board, from the flyback and from the chassis tray and then use a flat head screwdriverto release the connector locking tabs and pull upwards the board.

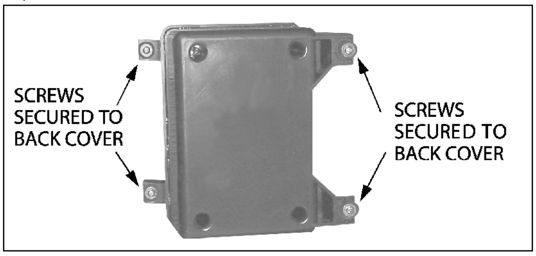
G-Board

Mated to A-Board by three flexible connectors A1, A2, A3 and D40 from D-Board. To remove this board, first unplug the four flexible connectors, then RT1, G4 and G14 connectors, then pull upwards the board while unlock the tabs from the chassis tray.

Speakers

Each speaker is secured to a plastic base with 4 screws, and each plastic base is secured to the from cabinet with two screws. For models including subwoofer speaker is assembled within the backcover of the television set by 4 screws

Subwoofer



NOTE

When reassembling speakers be sure to connect the speaker wires to the correct speaker lead (+) (-)

11.1. Disassembly for CRT replacement

1. **Discharge the CRT as instructed in the "safety precautions" section and remove 2nd anode button from the CRT.**
2. **Remove speaker modules (R and L)**
3. **Perform complete removal of chassis, as instructed in "disassembly for service" section.**

NOTE

When remounting the CRT, reuse the metal sheet located in the lower part of the cabinet holding the CRT, hold with screws to the cabinet. This metal sheet is not supplied with the CRT replacement.

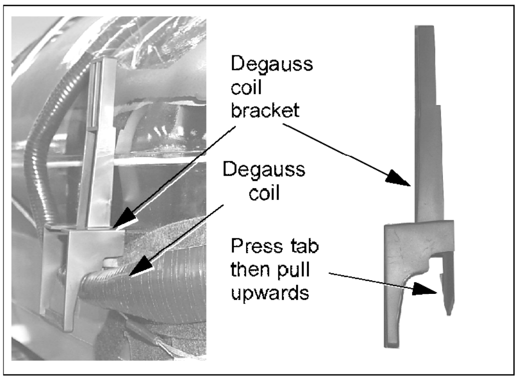
CRT replacement

1. **Perform "disassembly for CRT replacement" procedure.**
2. **Insure that the CRT H.V. Anode button is discharged before handling the CRT. Read the "safety precautions" section on handling the picture tube.**
3. **Remove the components from the CRT neck and place the cabinet face down on a soft pad.**
4. **Note the original order for the CRT mounting hardware as they are remove from the CRT mounting brackets at each corner of the CRT.**

5. Remove the CRT with the degaussing coil and the dag ground braid attached.

NOTE
To remove the four brackets holding the degauss coil from the corners of the CRT, first remove the CRT from the cabinet, then remove the brackets by pressing the tab on the bracket and pull upwards. These brackets are included in the degauss coilkit, for part number, please see parts list section

Brackets removal



6. Note the original locations and mounting of the degaussing coil and the dag ground assembly to insure proper reinstallation on the replacement CRT.

To remove and remount the degaussing coil:

- **Unhook the coil spring from the bottom corners of the CRT ears.**
- **Release the braid loop from the upper corners of the CRT ears.**

7. Mount the dag ground braid on the replacement CRT. Position the degaussing coil with new ties.

Dress coil as was on the original CRT.

8. Replace the components on CRT neck and reinstall into cabinet.

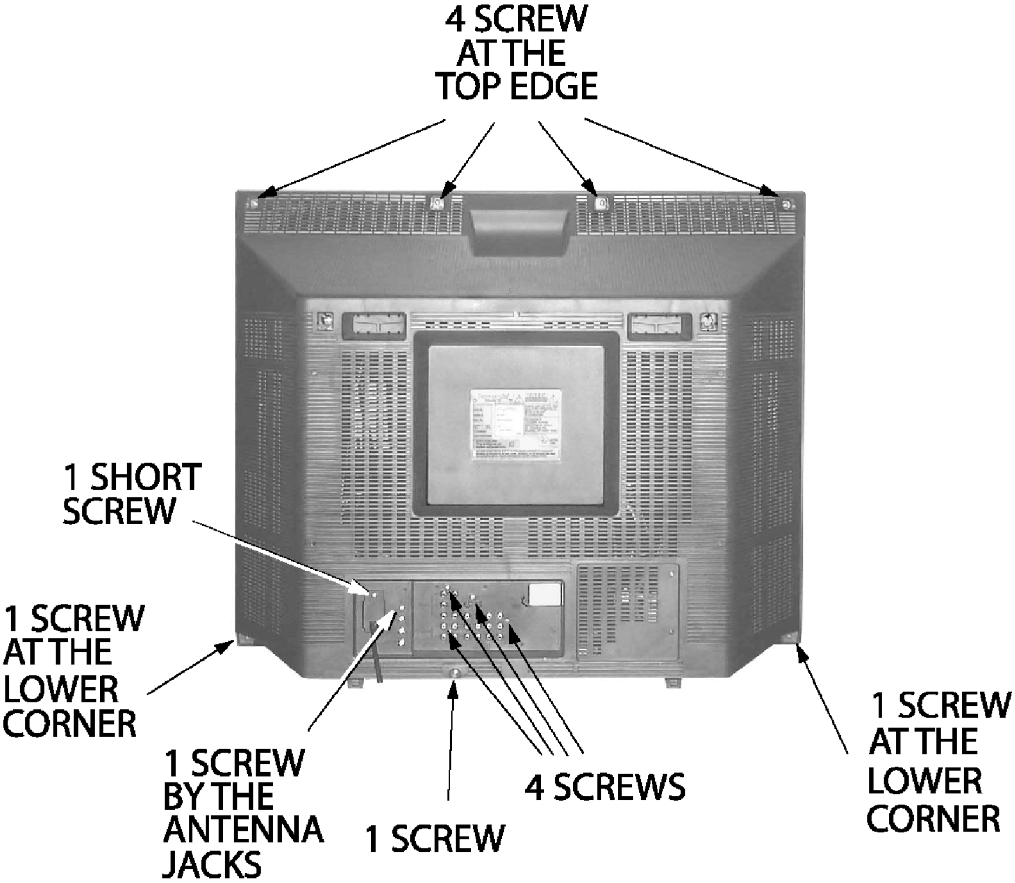
Verify that all ground wires and circuit board plugs get connected.

NOTE
Reuse all the clampers and mounting brackets from the degauss coil and screen, and when remounting the degauss coil assure that is not touching the speakers, this can be done by placing some tape, this may cause mask vibration. The mounting brackets andclampers are not supplied with the replacements.

IMPORTANT NOTICE

**When ordering the CRT, please order CRT and CRT kit also.
Please see parts list section for part numbers**

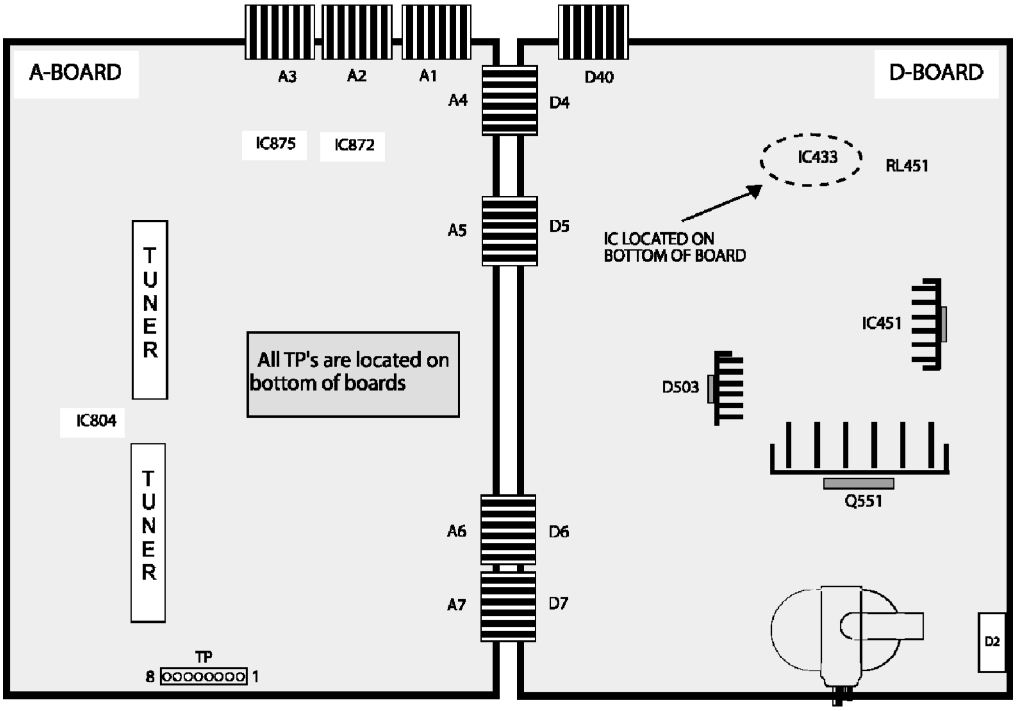
12. Back cover removal


4 SCREW AT THE TOP EDGE
1 SHORT SCREW
1 SCREW AT THE LOWER CORNER
1 SCREW BY THE ANTENNA JACKS
1 SCREW
4 SCREWS
1 SCREW AT THE LOWER CORNER

NOTE:
Cabinet appearance and location of the screws may vary depending on the model.

13. Chassis service adjustment procedures

All service adjustments are factory preset and should not require adjustment unless controls and/ or associated components are replaced.


A-BOARD
A3
A2
A1
A4
D40
D4
D-BOARD
IC875
IC872
IC433
RL451
A5
D5
IC LOCATED ON BOTTOM OF BOARD
TUNER
All TP's are located on bottom of boards
IC451
D503
IC804
Q551
TUNER
A6
D6
A7
D7
D2
TP
8
1

140.0_V B+ voltage check

1. **Set the BRIGHT and PICTURE to minimum by using the PICTURE menu.**
2. **Connect the DVM on TPD144 (D-Board by D2 connector) and cold ground**
3. **Confirm that B+ voltage is 144.0V ± 1.5V. This voltage supplies B+ to the horizontal output and flyback circuits.**

Source voltage chart

120V AC line input. Set the BRIGHT and the PICTURE to minimum by using the PICTURE menu. Use cold or hot ground for the (-) lead of the DVM as needed

A-BOARD	VOLTAGE
STBY 7V (BY IC804) A-Board TPP9	7.5 ± 0.6V
MAIN 9V (BY IC875) A-Board TPA7	9.0V ± 0.5V
MAIN 5V (BY IC871) A-Board TPA8	5.0V ± 0.3V
GC 2.5V (BY IC872) A-Board TPA9	2.5V ± 0.2
STBY 3.3V (BY A1 CONNECTOR) A-Board TPA16	3.3V ± 0.2V
D-BOARD	**VOLTAGE**
+B2 (BY D2 CONNECTOR) D-Board TPD144	144.0 ± 1.5V
25V (BY D40 CONNECTOR) D-Board TPD250	27.5 ± 2.0V
15V (BY D4 CONNECTOR) D-Board TPD150	15.7 ± 1.5V
-15V (BY RL451) D-Board TPD151	-16.0V ± 1.5V
SOUND+ (BY D4 CONNECTOR) D-Board TPD160	16.5V ± 1.0V
SOUND- (BY D4) D-Board TPD161	-16.5V ± 1.0V
220V (BY D2 CONNECTOR) D-Board TPD7	215V ± 5.0V
12V (BY IC433) D-Board TPA6	12V ± 0.5V

High voltage check

1. **Select an active TV channel and confirm that horizontal is in sync.**
2. **Adjust BRIGHTNESS and PICTURE using PICTURE icon menu so video just disappears.**
3. **Confirm B+ 144 ± 1.5V is within limit.**
4. **Using a high voltage meter confirm that the high voltage is 33.0 ± 1.0kV**

14. Purity and convergence procedure

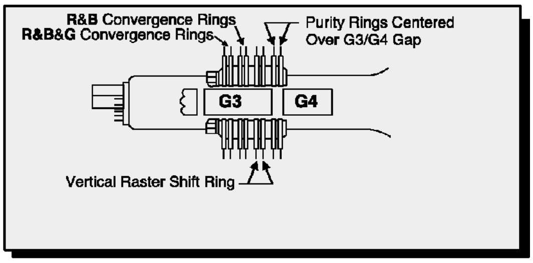
Adjustment is necessary only if the CRT or the deflection yoke is replaced or if the setting was disturbed. The complete procedure consists of:

1. **Vertical raster shift adjustment.**
2. **Initial static convergence.**
3. **Setting the purity.**
4. **Final static convergence.**

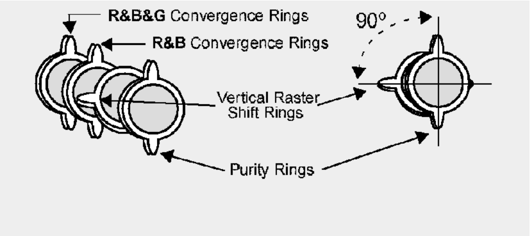
WHEN THE CRT OR THE YOKE IS REPLACED

Place the yoke on the CRT neck (do not tighten the clamp). Place the vertical raster shift tabs at 3 o'clock (90° from the purity and convergence tabs

Description of rings


R&B Convergence Rings
R&B&G Convergence Rings
Purity Rings Centered Over G3/G4 Gap
G3
G4
Vertical Raster Shift Ring

Initial position of rings


R&B&G Convergence Rings
R&B Convergence Rings
90°
Vertical Raster Shift Rings
Purity Rings

Turn the receiver ON. Operate the receiver for 60 minutes using the first purity check field (white screen) to stabilize the CRT.
Fully degauss the receiver by using an external degaussing coil.
Slide the deflection yoke back and forth on the neck of the CRT until it produces a near white, uniform raster.

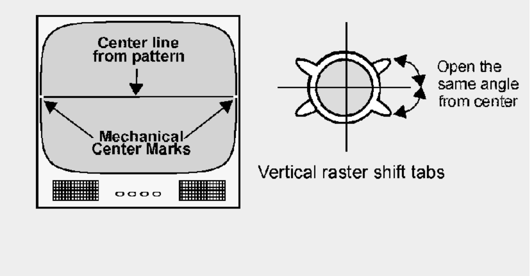
VERTICAL RASTER SHIFT ADJUSTMENT

Apply a green pattern with a horizontal line, adjust the Deflection Yoke so that has no tilt, then secure it.
Adjust center line of the pattern with the mechanical center of the CRT, this center is determined by two marks at the side edges of the screen. To adjust the line, once the vertical raster shift tabs are place at 3 o'clock to reduce itsmagnetic field effect open the tabs the same angle from the center, until the center line of the pattern becomes a straight line, centered with the marks of the CRT.

IMPORTANT NOTICE

Rings come along with deflection yoke in one piece.

Vertical raster shift adjustment


Center line from pattern
Mechanical Center Marks
Open the same angle from center
Vertical raster shift tabs

INITIAL CENTER STATIC CONVERGENCE

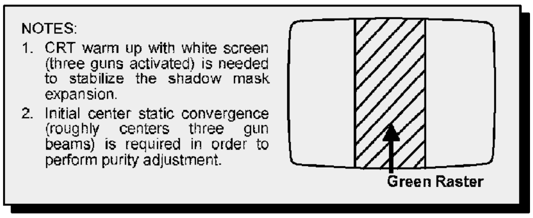
Connect a dot/cross hatch generator to the receiver and tune in a signal. Observe misconvergence at center of the screen only.
Adjust the R&B pole magnets; by separating tabs and rotating to converge blue with red.
Adjust the R&B and R&B&G pole magnets: by separating tabs and rotating to converge blue and red (magenta) with green.

NOTE
Precise convergence at this point is not important.

PURITY ADJUSTMENT

When the receiver is in the serviceman mode for making electronic adjustments, press the RECALL button on the remote control to enter purity check. (See the service adjustments electronic controls procedure).
Operate the receiver for 60 minutes using the first purity check field (white screen) to stabilize the CRT.
Fully degauss the receiver by using an external degaussing coil
Press the RECALL button on the remote control again until the purity check (green screen) appears.
Loosen the deflection yoke clamp screw and move the deflection yoke back as close to the purity magnet as possible.
Adjust the purity rings to set the vertical green raster precisely at the center of the screen

Green raster adjustment


NOTES:
1. CRT warm up with white screen (three guns activated) is needed to stabilize the shadow mask expansion.
2. Initial center static convergence (roughly centers three gun beams) is required in order to perform purity adjustment.

Slowly move the deflection yoke forward until the best overall green screen is displayed.
Tighten the deflection yoke clamp screw.
Press the RECALL button on the remote control again until the purity check blue and red screens appear and observe that good purity is obtained on each respective field.
Press the RECALL button on the remote control again until purity check (white screen) appears.
Observe the screen for uniform white. If purity has not been achieved, repeat the above procedure.

FINAL CONVERGENCE PROCEDURE

NOTE
Vertical size and focus adjustments must be completed prior to performing the convergence adjustment. Connect a dot pattern generator to the receiver. The brightness level should not be

higher than necessary to obtain a clear pattern.

Converge the red and the blue dots at the center of the screen by rotating the R&B pole static convergence magnets.
Align the converged red/blue dots with the green dots at the center of the screen by rotating the R &B&G pole static convergence magnets. Melt wax with soldering iron to reseal the magnets.
Slightly tilt vertically and horizontally (do not rotate) the deflection yoke to obtain a good overall convergence.
If convergence is not reached at the edges, insert permalloy in the DY corners to achieve proper convergence. Recheck for purity and readjust if necessary.
After vertical adjustment of the yoke, insert wedge at 11 o'clock position, then make the horizontal tilt adjustment.
Secure the deflection yoke by inserting four side wedges.
Apply adhesive between tab (thin portion) of wedge and CRT and place tape over the tab to secure to the CRT.

14.1. DYNAMIC CONVERGENCE ADJUSTMENT

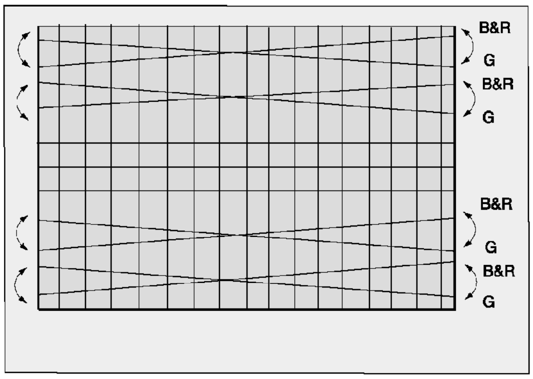
Use this for a precisely overall convergence adjust at the edges.

DY(YHC, YV, XV) ADJUSTMENT

YV ADJUSTMENT / (VR1 FOR HORIZONTAL DYNAMIC CONVERGENCE)

1. **Apply a crosshatch pattern.**
2. **Adjust contrast and brightness customer controls to obtain a correct picture.**
3. **With a driver adjust VR1 (located in deflection yoke board to obtain a proper corvergence at top and bottom of the screen**

VR1 adjustment (YV)



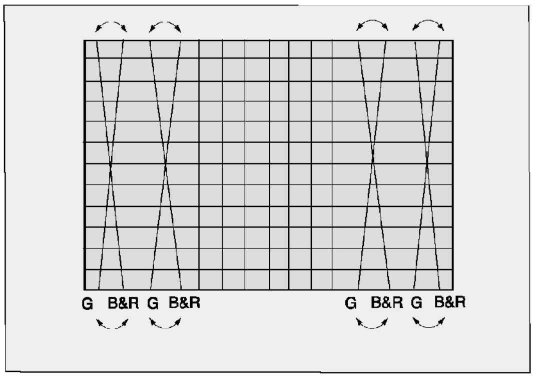
YH Adjustment / (VR2 for vertical dynamic convergence)

1. **Apply a crosshatch pattern.**
2. **Adjust contrast and brightness customer controls to obtain a**

correct picture.

3. With a driver Adjust VR2 (located in deflection yoke board to obtain a proper corvergence at left and right side of the screen.

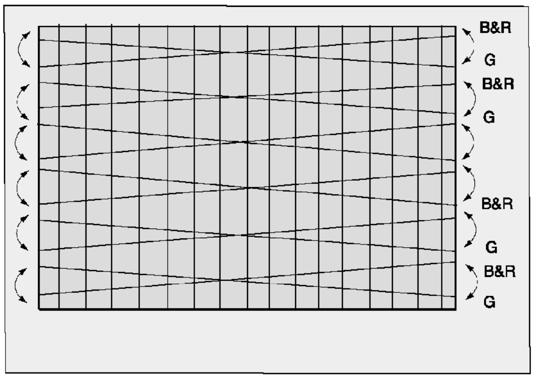
VR2 adjustment (YH)



XV Adjustment (precise adjustment)

1. Apply a crosshatch pattern.
2. Adjust contrast and brightness customer controls to obtain a correct picture.
3. With a driver adjust the coil located in deflection yoke board to obtain a proper convergence horizontally.

Xv adjustment



NOTE

Apply a red pattern and confirm purity, if purity is poor, repeat purity adjustments.

14.2. Permalloy convergence corrector strip (Part No. 0FMK014ZZ)

This strip is used in some sets to match the yoke and CRT for optimum convergence. If the yoke or CRT is replaced, the strip may not be required.
First converge the set without the strip and observe the corners.
First converge the set without the strip and observe the corners.
If correction is needed:

1. **Place strip between CRT and yoke, in quadrant needing correction. Slowly move it around for desired results.**
2. **Press adhesive tightly to the CRT and secure with tape.**

14.3. DAF adjustment / (Dynamic focus adjustment)

The purpose of this adjustment is to move the focus in the picture, so the focus is in balance in the whole picture (same level). Perform this adjustment as a visual adjustment, centering both waveforms, repeat adjustment until best adjustment isobtained.

PREPARATION

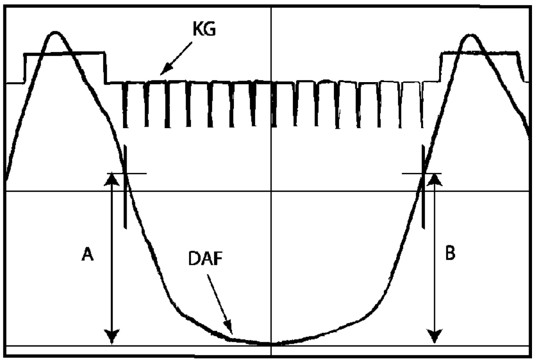
1. **Picture settings normalized.**
2. **Picture mode set to VIVID.**

PREPARATION

1. **Apply a crosshatch pattern.**
2. **Connect channel one of the oscilloscope with 100x1 probe to DAF OUT on J172 (D-Board).**
3. **Connect channel two of the oscilloscope with 10x1 probe to KG (L-Board).**
4. **If the the points A and B are different adjust, in service mode, adjust (HDAFS) DATA so that become the same position.**
5. **Apply a 1080i crosshatch pattern and repeat from step 1 to step 4.**

NOTE
Both waveforms should be centered. Upper waveform could be different depending on the pattern applied

DAF adjustment



Other method (DAF adjustment)

PREPARATION

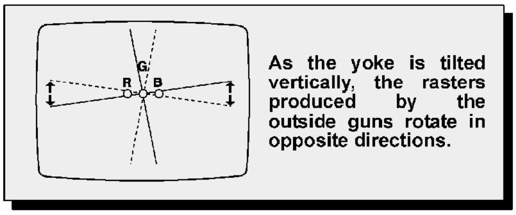
1. **Picture settings normalized.**
2. **Picture mode set to VIVID.**

PROCEDURE

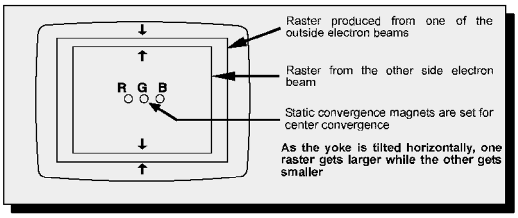
1. **Apply a crosshatch pattern.**
2. **Put a mark in the focus control (on fly-back), so the control can be put back in the original position.**
3. **Turn the focus control (fly-back) fully, so the image is out focus.**
4. **Then in service mode adjust (HDAFS) DATA, so the focus is moving from side to side in the picture.**
5. **Adjust (HDAFS) DATA so the picture looks in balance in left and right.**
6. **Turn focus (fly-back) control back to its original position.**
7. **Apply a 1080i crosshatch pattern and repeat from step 1 to step 6.**

NOTE

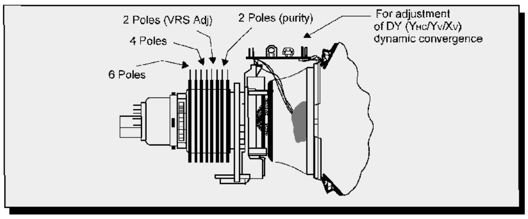
Repeat adjustment until best adjustment is obtained. For best adjustment, use oscilloscope as described in previous adjustment method.



As the yoke is tilted vertically, the rasters produced by the outside guns rotate in opposite directions.


R G B
Raster produced from one of the outside electron beams
Raster from the other side electron beam
Static convergence magnets are set for center convergence

As the yoke is tilted horizontally, one raster gets larger while the other gets smaller


2 Poles (VRS Adj)
2 Poles (purity)
4 Poles
6 Poles
For adjustment of DY (YHC/YV/XV) dynamic convergence

15. Service mode (electronic adjustments)

This receiver has electronic technology using the IC bus concept. It performs as a control function and it replaces many mechanical controls. Instead of adjusting mechanical controls individually, many of the control functions are now performedby using "on screen display menu". (The service adjustment mode).

NOTE

It is suggested that the technician reads all the way through and understand the following procedure for entering/exiting the service adjustment mode; then proceed with the instructions working with the receiver. When becoming familiarwith the procedure, the flow chart for service mode may be used as a quick guide.

Quick entry to service mode

When minor adjustments need to be done to the electronic controls, the method of entering the service mode without removal of the cabinet back is as follows using the remote control:

1. **Select SET-UP icon and select CABLE mode.**
2. **Select TIMER icon and set SLEEP time for 30 Min.**
3. **Exit menus.**
4. **Tune to the channel 124.**
5. **Adjust VOLUME to minimum (0).**
6. **Press VOL → (decrease) on receiver. Red "CHK" appears in upper corner.**

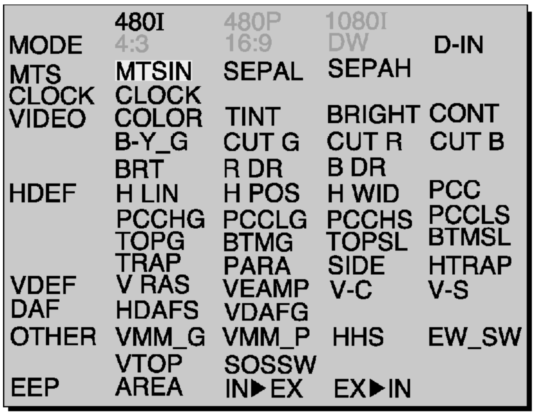
NOTE

After receiver is set into service mode, set TIMER back to NO.

To toggle between aging and service modes:

While the “CHK” is displayed on the left top corner of the CRT, pressing “ACTION” and “VOL” UP on the TV simultaneously will toggle between the modes. Red “CHK” for serviceand yellow “CHK” for aging.

7. Press POWER on the remote control to display the service adjustment modes menu, select adjustment by pressing the volume right/left buttons and channel up/down buttons on the remote and ACTION to enter the adjustment.


480I 480P 1080I
MODE 4:3 16:9 DW D-IN
MTS MTSIN SEPAL SEPAH
CLOCK CLOCK
VIDEO COLOR TINT BRIGHT CONT
B-Y_G CUT G CUT R CUT B
BRT R DR B DR
HDEF H LIN H POS H WID PCC
PCCHG PCCLG PCCHS PCCLS
TOPG BTMG TOPSL BTMSL
TRAP PARA SIDE HTRAP
VDEF V RAS VEAMP V-C V-S
DAF HDAFS VDAFG
OTHER VMM_G VMM_P HHS EW_SW
VTOP SOSSW
EEP AREA IN▶EX EX▶IN

NOTE

Some adjustments are available only in some modes (480i, 480p, 1080i); it is needed to apply the format. A 1080i, 480p, 480i pattern can be obtained from Panasonic’s TU-DST51 set-top box DTV decoder.

Exiting the service mode:

This TV goes out from service mode when it is unplugged or turned OFF. To exit the service mode, turn the TV OFF or unplug the TV from A.C.

Other method

Press ACTION and POWER on the receiver simultaneously for at least 2 seconds.

The receiver momentarily shuts off; then comes back on tuned to channel 3 with a preset level of sound.

Any programmed channels, channels caption data and some others user defined settings will be erased when exited by pressing ACTION and POWER on receiver.

IMPORTANT NOTE
Always check that the TV exits the service mode.

To confirm colors

When in service mode (red "CHK" is displayed) press RECALL on the remote control to enter the purity field check mode

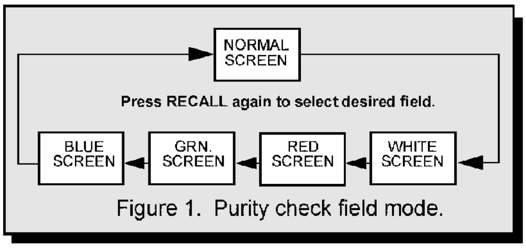


Figure 1. Purity check field mode.

Entering service mode (open-back method)

While the receiver is connected and operating in normal mode, momentarily short test point / FA1 (A15 pin 2) to cold ground (A-Board).
The receiver enters the aging mode.
Yellow letters "CHK" appear in the upper left corner of the screen. / (The volume right/left and channel up/down will adjust rapidly).

15.1. Service adjustment default values for items for 32"

REGISTER	DESCRIPTION	FORMAT			
		NTSC	480p (16:9)	1080i (16:9)	1080i
MTSIN	INPUT LEVEL	1A			
SEPAL	LOW LEVEL SEPARATION	6			
SEPAH	HIGH LEVEL SEPARATION	20			
CLOCK	CLOCK	128			
COLOR	COLOR	2F		17	
TINT	TINT	76		81	
BRIGH	SUB-BRIGHTNESS	3B		42	
CONT	SUB-CONTRAST	23		65	
B-Y_G	MAGENTA TINT ADJ	2E		3E	
CUT G	GREEN CUT-OFF	01 65			
CUT R	RED CUT-OFF	01 85			
CUT B	BLUE CUT-OFF	01 A6			
BRT	BGRIGHT				
R DR	RED DRIVE	A0			
B DR	BLUE DRIVE	A0			
HLIN	HORIZONTAL LINEARITY	79		7F	
HPOS	HORIZONTAL POSITIONING	01 7A		01 82	

REGISTER	DESCRIPTION	FORMAT			
		NTSC	480p (16:9)	1080i (16:9)	1080i (
HWID	HORIZONTAL WIDTH	54		2F	
PCC	PINCUSHION CORRECTION	50	2A	31	3E
PCCHG	PINCUSHION HIGH	6	0A	9	7
PCCLG	PINCUSHION LOW	2	7	5	9
PCCHS	PINCUSHION HIGH	4	3	3	3
PCCLS	PINCUSHION LOW	3	3	3	3
TOPG	TOP CORNER PINCUSHION	5B	55	4C	5E
BTMG	BOTTOM CORNER PINCUSHION	45	32	49	4A
TOPSL	TOP CORNER PINCUSHION SLICE LEVEL	2	8	6	7
BTMSL	BOTTOM CORNER PINCUSHION SLICE LEVEL	2	8	5	7
TRAP	TRAPEZOID	83	7E	7F	7D
PARA	PARALLELOGRAM	3	4	4	8
SIDE	E-W PINCUSHION ADJUSTMENT	4	6	7	8
HTRAP	HORIZONTAL TRAPEZOID	1A	1A	1A	14
VRAS	VERTICAL POSITION	8C	71	7B	79
VEAMP	VERTICAL SIZE	A8	E2	99	9A
V-C	VERTICAL LINEARITY	21	26	25	24
V-S	VERTICAL S CORRECTION	30	25	17	33
HDAFS	HORIZONTAL DAF PHASE	59		01 C5	A0
VDAFG	VERTICAL DAF GAIN	A0	63	60	0
VMM_G	----------------	F0		F0	
VMM_P	----------------	F3		F3	
HHS	----------------	CB			
EW_SW	----------------	0	0	0	
VTOP	----------------	9C	7E	79	9E
SOSSW	----------------	1		1	

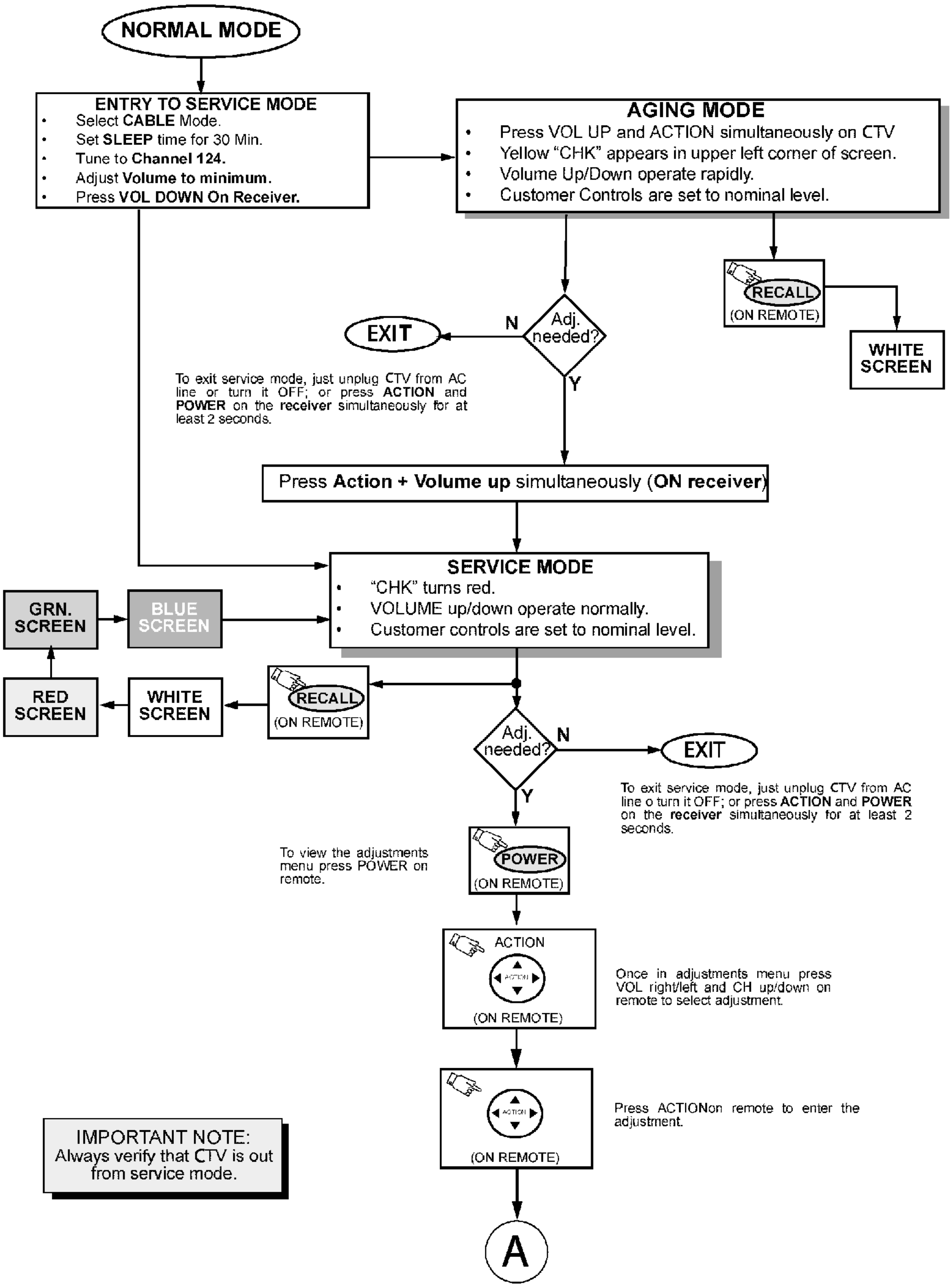
NOTE:
The above table shows the default values for the service items, this values can change depending on the serviced TV.

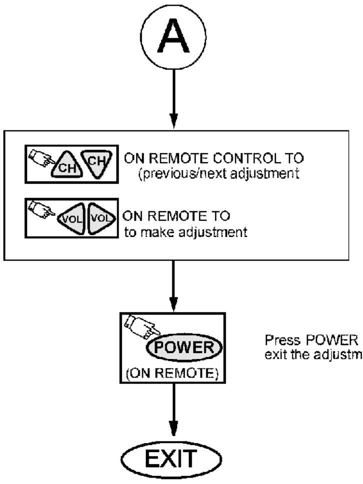
15.2. Service adjustment default values for items for 36”

REGISTER	DESCRIPTION	FORMAT			
		NTSC	480p (16:9)	1080i (16:9)	1080i (
MTSIN	INPUT LEVEL	1A			
SEPAL	LOW LEVEL SEPARATION	6			
SEPAH	HIGH LEVEL SEPARATION	20			
CLOCK	CLOCK	128			
COLOR	COLOR	2F		17	
TINT	TINT	7E		81	
BRIGH	SUB-BRIGHTNESS	3B		42	
CONT	SUB-CONTRAST	23		2E	
B-Y_G	MAGENTA TINT ADJ	2E		3E	
CUT G	GREEN CUT-OFF	01 65			
CUT R	RED CUT-OFF	01 85			
CUT B	BLUE CUT-OFF	01 A6			
BRT	BGRIGHT				
R DR	RED DRIVE	A0			
B DR	BLUE DRIVE	A0			
HLIN	HORIZONTAL LINEARITY	7F		7F	
HPOS	HORIZONTAL POSITIONING	01 7B		01 82	
HWID	HORIZONTAL WIDTH	5D		3E	
PCC	PINCUSHION CORRECTION	2C	19	31	3E
PCCHG	PINCUSHION HIGH	1F	1F	9	7
PCCLG	PINCUSHION LOW	2	16	5	9
PCCHS	PINCUSHION HIGH	3	3	3	3
PCCLS	PINCUSHION LOW	3	2	3	3
TOPG	TOP CORNER PINCUSHION	5B	49	4C	5E
BTMG	BOTTOM CORNER PINCUSHION	42	2D	49	4A
TOPSL	TOP CORNER PINCUSHION SLICE LEVEL	3	5	6	7
BTMSL	BOTTOM CORNER PINCUSHION SLICE LEVEL	1	6	5	7
TRAP	TRAPEZOID	81	7D	7F	7D
PARA	PARALLELOGRAM	7	9	4	8
SIDE	E-W PINCUSHION ADJUSTMENT	8	8	7	8
HTRAP	HORIZONTAL TRAPEZOID	16	16	1A	14
VRAS	VERTICAL POSITION	87	72	8A	79
VEAMP	VERTICAL SIZE	BD	A6	99	9A
V-C	VERTICAL LINEARITY	1F	26	25	24
V-S	VERTICAL S CORRECTION	32	25	17	33
HDAFS	HORIZONTAL DAF PHASE	59		01 C5	
VDAFG	VERTICAL DAF GAIN	60	63	60	A0
VMM_G	----------------	F0		F0	
VMM_P	----------------	F3		F3	
HHS	----------------	CB			
EW_SW	----------------	0	0	0	0
VTOP	----------------	9C	7E	79	9E
SOSSW	----------------	1		1	1

NOTE:
The above table shows the default values for the service items, this values can change depending on the serviced TV.

15.3. Instructional flow chart for service mode


NORMAL MODE
ENTRY TO SERVICE MODE
• Select CABLE Mode.
• Set SLEEP time for 30 Min.
• Tune to Channel 124.
• Adjust Volume to minimum.
• Press VOL DOWN On Receiver.
AGING MODE
• Press VOL UP and ACTION simultaneously on CTV
• Yellow "CHK" appears in upper left corner of screen.
• Volume Up/Down operate rapidly.
• Customer Controls are set to nominal level.
RECALL
(ON REMOTE)
WHITE SCREEN
EXIT
N
Adj. needed?
Y
To exit service mode, just unplug CTV from AC line or turn it OFF; or press ACTION and POWER on the receiver simultaneously for at least 2 seconds.
Press Action + Volume up simultaneously (ON receiver)
SERVICE MODE
• "CHK" turns red.
• VOLUME up/down operate normally.
• Customer controls are set to nominal level.
GRN. SCREEN
BLUE SCREEN
RED SCREEN
WHITE SCREEN
RECALL
(ON REMOTE)
Adj. needed?
N
EXIT
Y
To exit service mode, just unplug CTV from AC line o turn it OFF; or press ACTION and POWER on the receiver simultaneously for at least 2 seconds.
To view the adjustments menu press POWER on remote.
POWER
(ON REMOTE)
ACTION
(ON REMOTE)
Once in adjustments menu press VOL right/left and CH up/down on remote to select adjustment.
(ON REMOTE)
Press ACTIONon remote to enter the adjustment.
A
IMPORTANT NOTE:
Always verify that CTV is out from service mode.


A
CH
CH
ON REMOTE CONTROL TO
(previous/next adjustment
VOL
VOL
ON REMOTE TO
to make adjustment
POWER
(ON REMOTE)
EXIT

Press POWER or ACTION on remote to exit the adjustment.

IMPORTANT NOTE:
Always verify that CTV is out from service mode.

To exit service mode, just unplug CTV from AC line or turn it OFF; or press **ACTION** and **POWER** on the **receiver** simultaneously for at least 2 seconds.

16. Service adjustments (electronic controls)

NOTE

Please correlate with available pattern on all adjustments

16.1. (NTSC) Sub-Brightness / Service DAC adjustment (BRIGHT)

Adjustment of this control is important for setting proper operation of customer brightness and picture controls. Do not adjust the SCREEN VR after the sub-brightness is set.

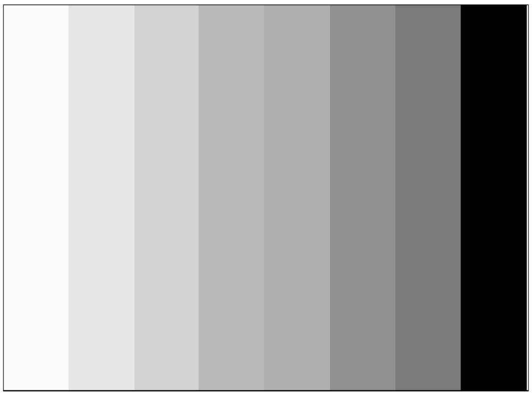
Preparation

1. **Normalize picture settings.**
2. **Picture mode set to VIVID.**
3. **Switch NATURAL COLOR to OFF.**
4. **Switch COLOR TEMPERATURE to COOL.**

Procedure

1. **Apply a colorbar with no color pattern.**
2. **In the service mode for making electronic adjustments, select the DAC adjustment “BRIGHT” and adjust data so that 7.5IRE part is the same light output as the 3IRE part**

Bars pattern



16.2. (1080i) Sub-Brightness / Service DAC adjustment (BRIGHT)

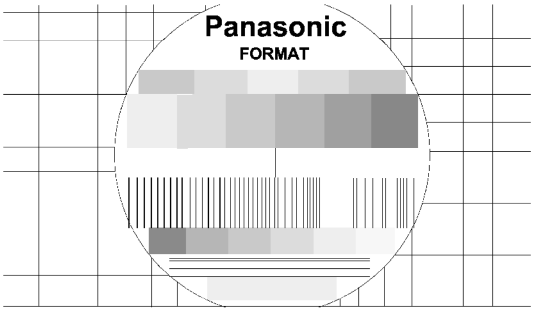
Adjustment of this control is important for setting proper operation of customer brightness and picture controls. Do not adjust the SCREEN VR after the sub-brightness is set.

Preparation

1. **Normalize picture settings.**
2. **Picture mode set to VIVID.**
3. **Switch NATURAL COLOR to OFF.**
4. **Switch COLOR TEMPERATURE to COOL.**

Procedure

1. **Apply a colorbar with no color pattern.**
2. **In the service mode for making electronic adjustments, select the DAC adjustment “BRIGHT” and adjust data so that 7.5IRE part is the same light output as the 3IRE part**



16.3. (NTSC) Sub-Contrast / Service DAC adjustment (CUT-G, CONT)

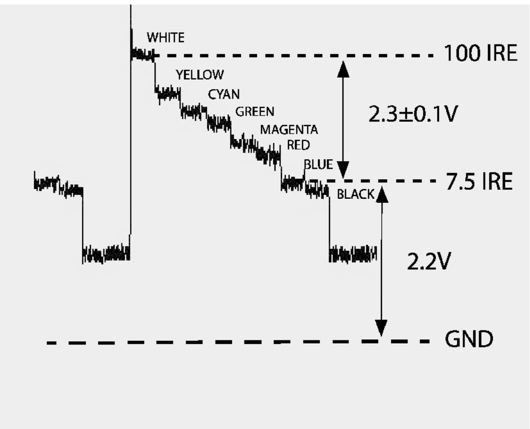
This adjustment is factory set. Do not adjust unless repairs are made to associated circuit, the CRT Board or when the CRT is replaced.

Preparation

1. Apply a colorbar pattern.
2. Set the PICTURE settings to normal.
3. Set color to minimum (no color on picture).
4. Set PICTURE mode to VIVID
5. Connect the oscilloscope to TP47G.

Procedure

1. In the service mode, select DAC for brightness adjustment “BRIGH” and set data to “1 D0”.
2. In service mode, select DAC for green cutoff adjustment “CUT-G”, and adjust data to obtain 2.2 V between 7.5IRE and GND level at TP47G. (See waveform detail)
3. In service mode, select DAC for contrast adjustment “CONT”, and adjust data to obtain 2.3±0.1V between 7.5IRE and 100IRE level at TP47G. (See waveform detail)



16.4. (1080i) Sub-Contrast / Service DAC adjustment (CUT-G, CONT)

This adjustment is factory set. Do not adjust unless repairs are made to associated circuit, the CRT Board or when the CRT is replaced.

PREPARATION

1. Apply a 1080i pattern (colorbar no color).
2. Set the PICTURE settings to normal.

3. Set PICTURE mode to VIVID
4. Connect the oscilloscope to TP47G.

PROCEDURE

1. In the service mode, select DAC for brightness adjustment “BRIGH” to obtain 2.0V between 0 IRE and GND level at TP47G
2. In service mode, select DAC “CONT”, and adjust data to obtain 2.5 ±0.1V between 0 IRE and 100 IRE level at TP47G

16.5. (NTSC) Color output adjustment / Service DAC adjustment (COLOR, TINT)

NOTE

if a rainbow pattern generator is available perform the following procedure; the next section describes the procedure with no rainbow pattern.

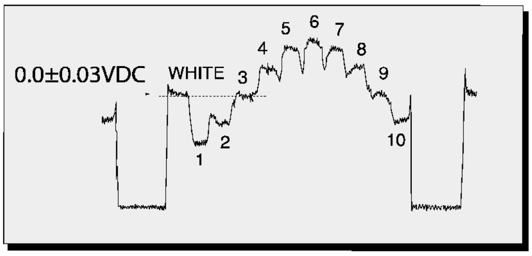
Make sure that sub-contrast adjustment was finished prior to perform this adjustment

PREPARATION

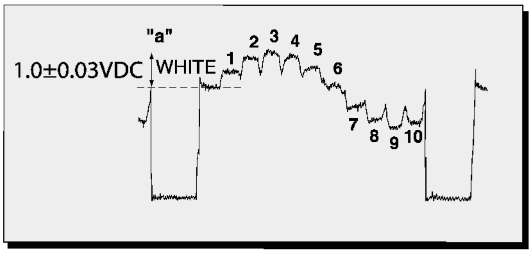
1. Normalize the picture settings.
2. Set picture mode to VIVID
3. Switch NATURAL COLOR to OFF.

PROCEDURE

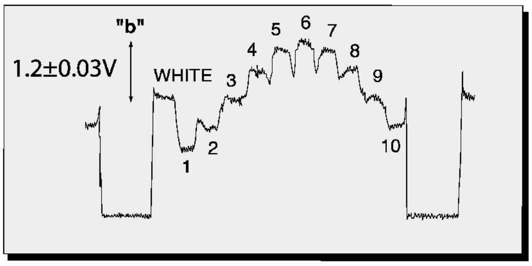
1. Apply a rainbow color bar pattern.
2. In service mode adjust “R DR” and “B DR” data to “80”.
3. Connect the oscilloscope to TP47B.
4. In service mode adjust “TINT” data so that the peak white is located at same level as peak “3”, within 0±0.03V. (See waveform detail)


5
6
7
4
8
0.0±0.03VDC
WHITE
3
9
2
10
1

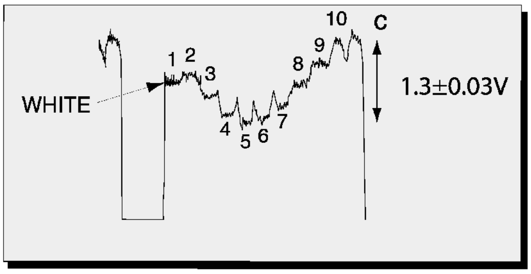
5. Connect the oscilloscope to TP47R.
6. In service mode adjust “COLOR” data so that the amplitude “a” is 1.0±0.03V.


"a"
2
3
4
5
1.0±0.03VDC
WHITE
1
6
7
8
9
10

7. Connect the oscilloscope to TP47B.
8. In service mode adjust “B-Y G” data so that the amplitude “b” is 1.2±0.03V (between 3rd and 6th peaks).


"b"
5
6
7
1.2±0.03V
4
8
WHITE
3
9
2
10
1

9. With oscilloscope still connected to TP47B, adjust “TINT” data so that the peak “9” is located at same level as peak “3”, within 0± 0.03V, then increase “TINT” databy 9 steps.
10. Connect oscilloscope to TP47G.
11. In service mode adjust “COLOR” data so that the amplitude “C” is 0.92~0.02V.


10
C
9
1
2
8
3
1.3±0.03V
WHITE
4
7
5
6

12. Apply a studio color bar pattern and confirm that saturation and phase are normal (normal image).

16.6. (NTSC) Color output adjustment / Service DAC adjustment / (COLOR, TINT, B-Y_G)

NOTE

Color and tint adjustment sets the reference settings for the user controls; It is important to read the procedures.

(NO RAINBOW PATTERN)

Make sure that sub-contrast adjustment was finished prior to perform this adjustment

PREPARATION

1. Normalize the picture settings.
2. Set picture mode to VIVID
3. Switch NATURAL COLOR to OFF.

PROCEDURE

1. Apply a color bar pattern.
2. In service mode adjust “R DR” and “B DR” data to “80”.
3. In service mode adjust “TINT” data so that the color does not become greenish or redish.
4. In service mode adjust “COLOR” data so that the color level is not too high (saturated) or too low (tending to black and white).
5. In service mode adjust “B-Y G” data so that blue and green seem natural.
6. confirm that saturation and picture are normal (normal image).
7. If image is not satisfactory, repeat adjustment until the images is normal and natural

NOTE

The image can be compared against other set to see the image quality.

16.7. (1080i) Color output adjustment / Service DAC adjustment (COLOR, TINT

Make sure that sub-contrast adjustment was finished prior to perform this adjustment

PREPARATION

1. **Normalize the picture settings.**
2. **Set picture mode to VIVID**
3. **Switch NATURAL COLOR to OFF.**

PROCEDURE

1. **Apply a 1080i pattern or signal**
2. **In service mode adjust “R DR” and “B DR” data to “80”.**
3. **In service mode adjust “TINT” data so that the color does not become greenish or redish.**
4. **In service mode adjust “COLOR” data so that the color level is not too high (saturated) or too low (tending to black and white).**
5. **In service mode adjust “B-Y G” data so that blue and green seem natural.**
6. **confirm that saturation and picture are normal (normal image).**
7. **If image is not satisfactory, repeat adjustment until the images is normal and natural.**

NOTE
The image can be compared against other set to see the image quality.

16.8. Color temperature adjustment / (B/W Tracking) / Service DAC Adjust. / (CUT R) (CUT G) (CUT B) (R DR) (B DR)

Minor Touch-Up Method

OBSERVE low and high brightness areas of a B/W picture for proper tracking. Adjust only as required for “good gray scale and warm highlights”.

1. **LOW LIGHT areas - In service mode for making electronic adjustments, select CUT R, CUT G, CUT B and adjust the picture for gray.**
2. **HIGH LIGHT areas - In service mode for making electronic adjustments, select drive R DR, B DR and adjust the picture for warm whites.**

Complete adjustment

PREPARATION

1. **Turn the receiver “ON” and allow 30 minutes warm up at WHITE PATTERN.**
2. **Apply a color bar pattern (with no color).**
3. **Turn the SCREEN control (part of FBT T551) fully counterclockwise.**
4. **Preset the following service DACs for best results:**

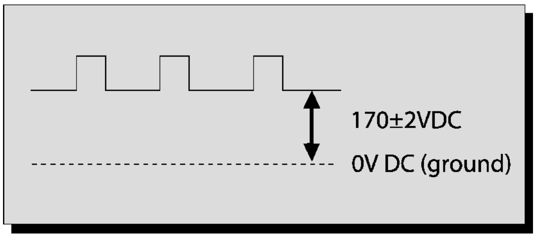
   - **BRIGH______________________1 D0**
   - **CUT R______________________0 00**
   - **CUT G______________________1 80**
   - **CUT B______________________0 00**
   - **R DR_______________________80**
   - **B DR_______________________80**
   - **PICTURE SETTINGS__________NORMALIZED**
   - **PICTURE MODE______________VIVID**

PROCEDURE

1. **Connect the oscilloscope to KG (CRT-Board).**
2. **In service mode for making electronic adjustment, select “BRIGH” DAC.**
3. **Press RECALL button on the remote control to collapse the raster. (service SW).**
4. **Connect oscilloscope to KG on L-Board and adjust service mode “CUT-G” DAC until 170±2V above DC ground is measured**

5. Remove the probe from KG.
6. Turn screen clockwise slowly until color is slightly appeared.
7. Then adjust “CUT R” and “CUT B” until line becomes white.
8. Press RECALL button on the remote to restore the raster.
9. Adjust “R DR” and “B DR” so the white seems like white and black like black
10. Apply a normal signal and confirm that the image is normal and a good gray scale
11. If correction is needed perform minor touch-up method.

NOTE
This adjustment (NTSC) will adjust automatically 480p and 1080i formats, no need to adjust for these formats



16.9. Deflection adjustments

To reset deflection adjustments
To reset deflection adjustments to factory adjusted default, enter to service mode (with red CHK displayed), press POWER button on remote to display the service menu, then press and hold RECALL button for at least three seconds, a reset messagewill appear in the image.
Use this feature when deflection adjustment gets off adjustment to the point that it cannot be adjusted back easily.

NOTE
Deflection adjustment for 480i/480p, 480i/480p 16:9 and 480i/480p split, 1080i letter and split mode are provided differently.

16.9.1. (480i/480p) / H-Center adjustment

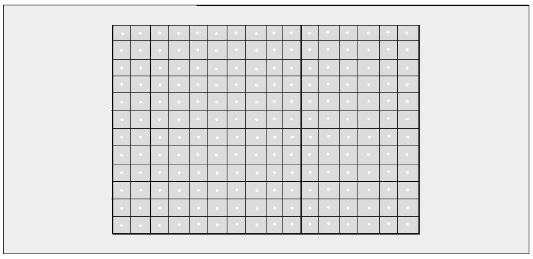
PREPARATION

1. Apply a crosshatch pattern.
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. If horizontal linearity is poor, in service mode, adjust data “H LIN”

H-Adjustment



2. Apply a pattern to center the picture.
3. If the horizontal center is not aligned, in service mode adjust “H POS” DATA to adjust the horizontal center of the monoscope pattern to the CRT center.

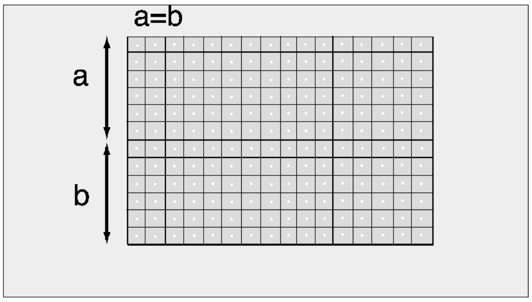
16.9.2. (480i/480p) / Vertical linearity(V-C), V-Size and V-Position adjustment

PREPARATION

1. Apply a crosshatch pattern
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select DAC adjustment / “V-RAS” and adjust crosshatch pattern to center vertical position to the CRT center.
2. Adjust linearity data “V-C” so that interval of “a” is same as “b” (a= b).



3. **If the v-position is not at the CRT center, adjust / V position "V RAS" DATA again.**
4. **Adjust H-TRAPEZOID data "HTRAP" so that the upper and lower lines becomes horizontal.**

16.9.3. (480i/480p) / V-S, V-Size adjustment

PREPARATION

1. **Apply a crosshatch pattern**
2. **Normalize the picture settings.**
3. **Set picture mode to VIVID**

PROCEDURE

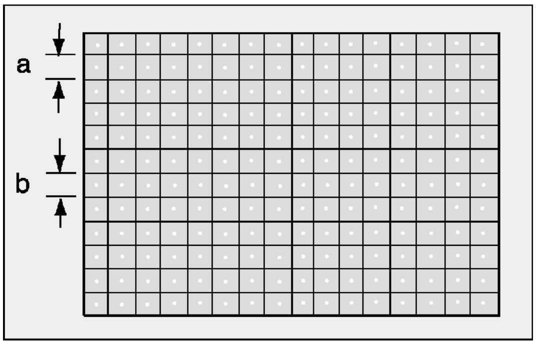
1. **Enter to service mode**
2. **Check a and b sizes, If b-a < -1.5mm (in top & bottom extending case)**

    - **Increase "V-S" DATA by one step**
    - **Adjust "VEAMP" so that V-SIZE is regular size again.**

    NOTE
    Repeat "a" and "b" until b-a ± 1.5mm

3. **Confirm to make outermost circle of monoscope pattern a correct circle**

V-Adjustment



16.9.4. (480i/480p) / Trapezoid adjustment

PREPARATION

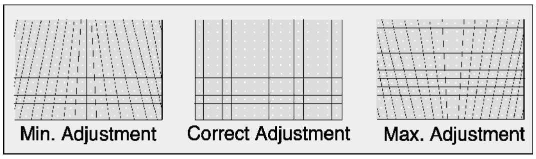
1. Apply a crosshatch pattern

2. Normalize the picture settings.

3. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select "TRAP" and adjust DATA so that lines at right and left are vertical like a solid line



16.9.5. (480i/480p) / Parallelogram adjustment

PREPARATION

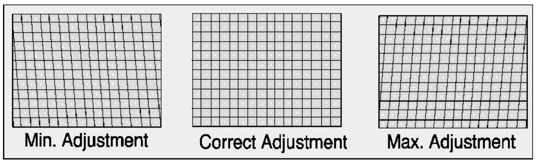
1. Apply a crosshatch pattern

2. Normalize the picture settings.

3. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select "PARA" and adjust so that the lines at right and left are vertical like solid line.


Min. Adjustment
Correct Adjustment
Max. Adjustment

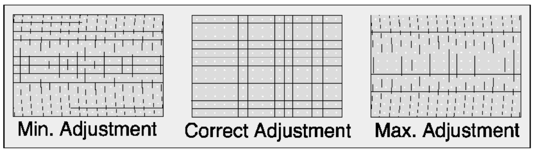
16.9.6. (480i/480p) / E-W PCC balance adjustment

PREPARATION

1. Apply a crosshatch pattern
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select “SIDE” and adjust so that lines at right and left are vertical like solid line.


Min. Adjustment
Correct Adjustment
Max. Adjustment

16.9.7. (480i/480p) / PCC adjustment

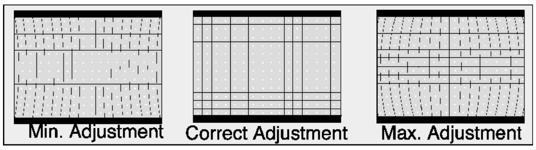
PREPARATION

1. Apply a crosshatch pattern
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Confirm that trapezoid adjustment is done.
2. Adjust “PCC” DATA so that the 1st line and 3rd line make a good balance

PCC adjustments


Min. Adjustment
Correct Adjustment
Max. Adjustment

NOTE

If side and lower side is imbalanced, adjust “PCCHG” and “PCCLG” so that “PCC” make good balance.

16.9.8. (480i/480p) / Corner PCC adjustment

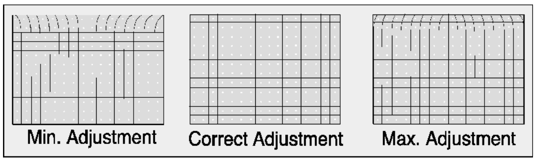
PREPARATION

1. **Apply a crosshatch pattern**
2. **Normalize the picture settings.**
3. **Set picture mode to VIVID**

PROCEDURE

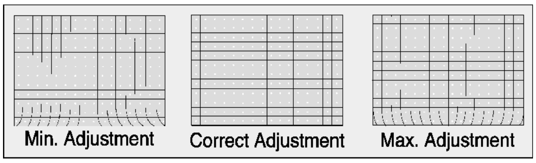
1. **To adjust upper and lower linearity.**
2. **Adjust “TOPG” to straighten upper lines**

Top adjustment


Min. Adjustment
Correct Adjustment
Max. Adjustment

3. **Adjust “BTMG” to straighten lower lines**

Bottom adjustment


Min. Adjustment
Correct Adjustment
Max. Adjustment

NOTE

If TOP-BOTTOM bending point is not so good, adjust “TOPSL” and “BTMSL” of slice level.

16.9.9. (480i/480p) / H-Size adjustment

PREPARATION

1. **Use a pattern that permits centering the image**
2. **Normalize the picture settings.**
3. **Set picture mode to VIVID**

PROCEDURE

1. **Adjust “H WID” DATA so that left width and right become in good balance (not too wide or narrow).**

16.9.10. (480i/480p 16:9 and 480i/480p split) Vertical linearity(V-C) and V-Position adjustment

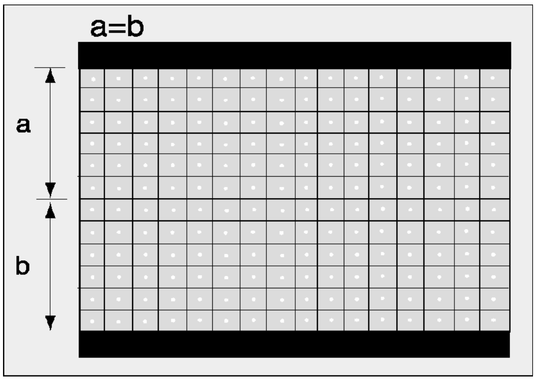
PREPARATION

1. **Apply a 480p pattern**
2. **Set mode to 16x9 in set-up menu**
3. **Normalize the picture settings.**
4. **Set picture mode to VIVID**

PROCEDURE

1. **Enter service mode, select DAC adjustment / “V-RAS” and adjust crosshatch pattern to center vertical position to the CRT center.**
2. **Adjust linearity data “V-C” so that interval of “a” is same as “b” (a= b).**

Linearity adjustment



16.9.11. (480i/480p 16:9 and 480i/480p split) / V-S, V-Size adjustment

PREPARATION

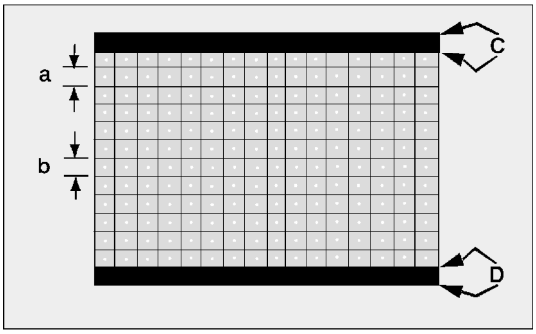
1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Enter to service mode
2. Adjust "VAMP" so that width C and D becomes 60mm for 32" and 70mm for 36"
3. Check a and b sizes, If b-a < -1.5mm (in top and bottom extending case)
   - Increase "V-S" DATA by one step
   - Adjust "VEAMP" so that width C and D becomes 60mm for 32" and 70mm for 36".

   NOTE
   Repeat until b-a ± 1.5mm

V-Adjustment



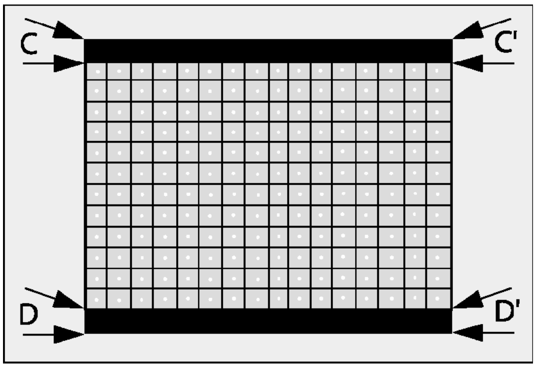
16.9.12. (480i/480p 16:9 and 480i/480p split) / H-Trapezoid adjustment

PREPARATION

1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select "HTRAP" and adjust DATA so that upper and lower edges become horizontal (c=c' and d=d')



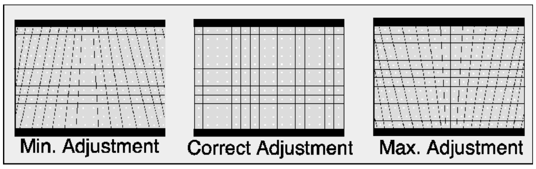
16.9.13. (480i/480p 16:9 and 480i/480p split) / Trapezoid adjustment

PREPARATION

1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select "TRAP" and adjust DATA so that lines at right and left are vertical like a solid line



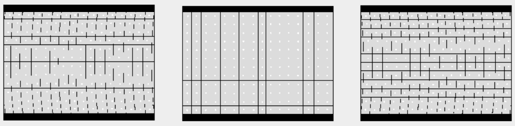
16.9.14. (480i/480p 16:9 and 480i/480p split) / E-W PCC adjustment

PREPARATION

1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select “SIDE” and adjust so that lines at right and left are vertical like solid line.



Min. Adjustment Correct Adjustment Max. Adjustment

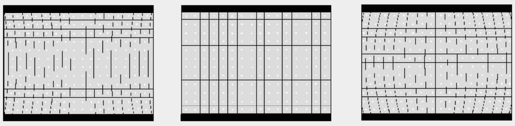
16.9.15. (480i/480p 16:9 and 480i/480p split) / PCC adjustment

PREPARATION

1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Confirm that trapezoid adjustment is done.
2. Adjust “PCC” DATA so that the 1st line and 3rd line make a good balance



Min. Adjustment Correct Adjustment Max. Adjustment

NOTE

If side and lower side is imbalanced, adjust “PCCHG” and “PCCLG” so that “PCC” make good balance.

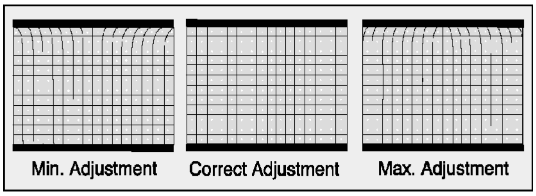
16.9.16. (480i/480p 16:9 and 480i/480p split) / Corner PCC adjustment

PREPARATION

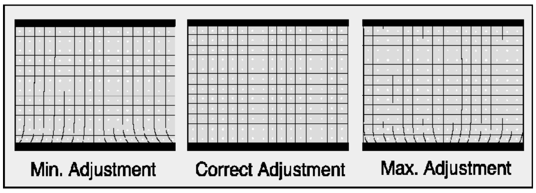
1. Apply a 480p pattern
2. Set mode to 16x9 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. To adjust upper and lower linearity.
2. Adjust "TOPG" to straighten upper lines


Min. Adjustment
Correct Adjustment
Max. Adjustment

3. Adjust "BTMG" to straighten lower lines


Min. Adjustment
Correct Adjustment
Max. Adjustment

NOTE

If TOP-BOTTOM bending point is not so good, adjust "TOPSL" and "BTMSL" of slice level.

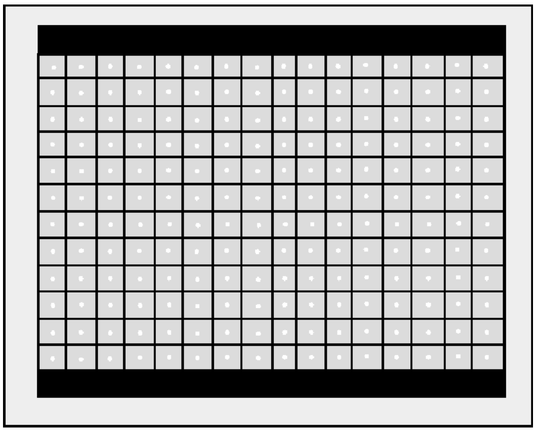
16.9.17. 1080i letter and split) / H-Center adjustment

PREPARATION

1. Apply a 1080i pattern.
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. If horizontal linearity is poor, in service mode, adjust data “H LIN”



2. Apply a pattern to center the picture.
3. If the horizontal center is not aligned, in service mode adjust “H POS” DATA to adjust the horizontal center of the monoscope pattern to the CRT center.

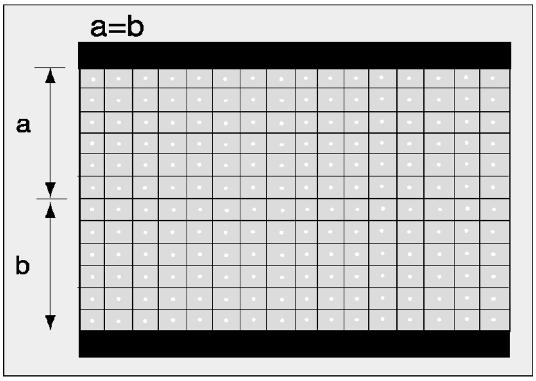
16.9.18. (1080i letter and split) / Vertical linearity(V-C) and V-Position adjustment

PREPARATION

1. Apply a 1080i pattern.
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select DAC adjustment / “V-RAS” and adjust pattern to center vertical position to the CRT center.
2. Adjust linearity data “V-C” so that interval of “a” is same as “b” (a= b).



3. If the v-position is not at the CRT center, adjust again.

16.9.19. (1080i letter and split) / V-S, V-Size adjustment

PREPARATION

1. Apply a 1080i pattern
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Enter to service mode
2. Adjust “VAMP” so that width C and D becomes 60mm for 32” and 70mm for 36”
3. Check a and b sizes, If b-a < -1.5mm (in top and bottom extending case)

   - Increase “V-S” DATA by one step
   - Adjust “VEAMP” so that width C and D becomes 60mm for 32” and 70mm for 36”.

   NOTE
   Repeat until b-a ± 1.5mm

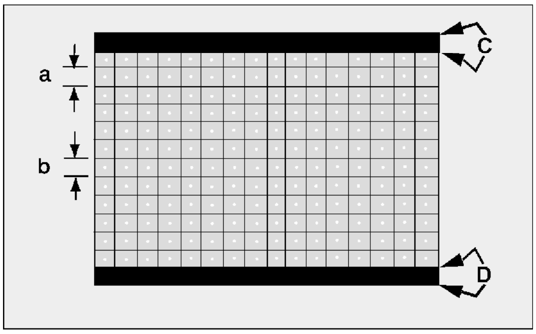
4. Check a and b sizes, If b-a > -1.5mm (in top and bottom extending case)

   - Decrease “V-S” DATA by one step

- Adjust “VEAMP” so that width C and D becomes 60mm for 32” and 70mm for 36”.

NOTE

Repeat until b-a ± 1.5mm



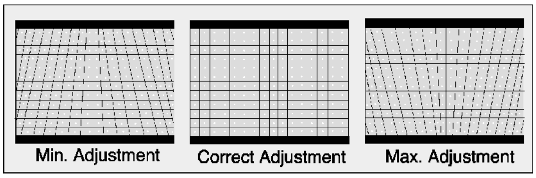
16.9.20. (1080i letter and split) / Trapezoid adjustment

PREPARATION

1. **Apply a 1080i pattern**
2. **Normalize the picture settings.**
3. **Set picture mode to VIVID**

PROCEDURE

1. **Enter service mode, select “TRAP” and adjust DATA so that lines at right and left are vertical like a solid line**



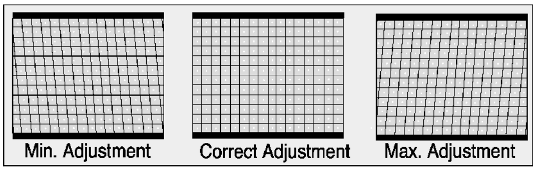
16.9.21. (1080i letter and split) / Parallelogram adjustment

PREPARATION

1. **Apply a 1080i pattern**
2. **Normalize the picture settings.**
3. **Set picture mode to VIVID**

PROCEDURE

1. Enter service mode, select “PARA” and adjust so that the lines at right and left are vertical like solid line.


Min. Adjustment
Correct Adjustment
Max. Adjustment

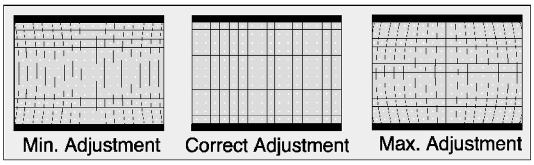
16.9.22. (1080i letter and split) / PCC adjustment

PREPARATION

1. Apply a 1080i pattern
2. Normalize the picture settings.
3. Set picture mode to VIVID

PROCEDURE

1. Confirm that trapezoid adjustment is done.
2. Adjust “PCC” DATA so that the 1st line and 3rd line make a good balance


Min. Adjustment
Correct Adjustment
Max. Adjustment

NOTE:
If upper and lower side is unbalaced, adjust “PCCHG” and “PCCLG” so that “PCC” make good balance.

16.9.23. (1080i letter and split) / Corner PCC adjustment

PREPARATION

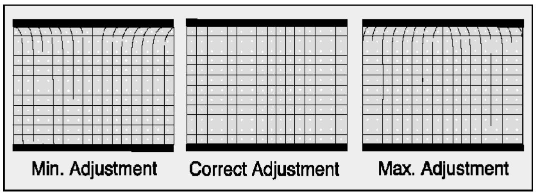
1. Apply a 1080i pattern
2. Normalize the picture settings.

3. Set picture mode to VIVID

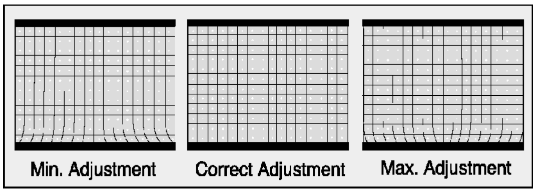
PROCEDURE

1. To adjust upper and lower linearity.

2. Adjust “TOPG” to straighten upper lines


Min. Adjustment
Correct Adjustment
Max. Adjustment

3. Adjust “BTMG” to straighten lower lines


Min. Adjustment
Correct Adjustment
Max. Adjustment

NOTE

If TOP-BOTTOM bending point is not so good, adjust “TOPSL” and “BTMSL” of slice level.

16.9.24. (1080i letter and split) / E-W PCC adjustment

PREPARATION

1. Apply a 1080i pattern

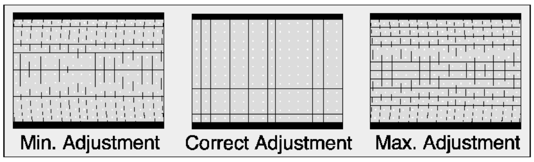
2. Normalize the picture settings.

3. Set picture mode to VIVID

PROCEDURE

1. Confirm that trapezoid adjustment is done.

2. Adjust “SIDE” DATA so that the lines at left and right become vertical


Min. Adjustment
Correct Adjustment
Max. Adjustment

16.9.25. (1080i letter and split) / H-Width adjustment

PREPARATION

1. Use a pattern that permits centering the image
2. Apply a 1080i pattern
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. Adjust “H WID” DATA so that left width and right become in good balance (not too wide or narrow).

16.9.26. (1080i full) / H-Size, V-SIZE adjustment

PREPARATION

1. Use a pattern that permits centering the image
2. Apply a 1080i pattern
3. Set mode to 4x3 in set-up menu
4. Normalize the picture settings.
5. Set picture mode to VIVID

PROCEDURE

1. Adjust “H WID” and “HPOS” DATA so that left width and right become in good balance (not too wide or narrow and centered).
2. Adjust “VEAMP” and “VRAS” DATA so that upper h and lower become in good balance (not too wide or narrow and centered)

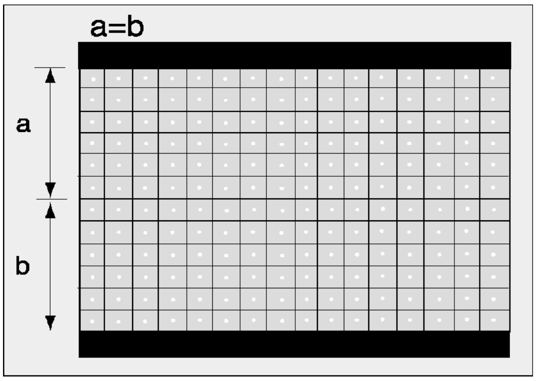
16.9.27. (1080i full) / Vertical linearity(V-C) and V-Position adjustment

PREPARATION

1. Use a pattern that permits centering the image
2. Apply a 1080i pattern
3. Set mode to 4x3 in set-up menu
4. Normalize the picture settings.
5. Set picture mode to VIVID

PROCEDURE

1. Enter service mode, select DAC adjustment / "VRAS" and adjust pattern to center vertical position to the CRT center.
2. Adjust linearity data "V-C" so that interval of "a" is same as "b" (a= b).



3. If the v-position is not at the CRT center, adjust again.

16.9.28. (1080i full) / V-S, V-Size adjustment

PREPARATION

1. Use a pattern that permits centering the image
2. Apply a 1080i pattern
3. Set mode to 4x3 in set-up menu
4. Normalize the picture settings.
5. Set picture mode to VIVID

PROCEDURE

1. Enter to service mode

2. Adjust “VAMP” to correct vertical size.
3. Check a and b sizes, If b-a < -1.5mm (in top and bottom extending case)

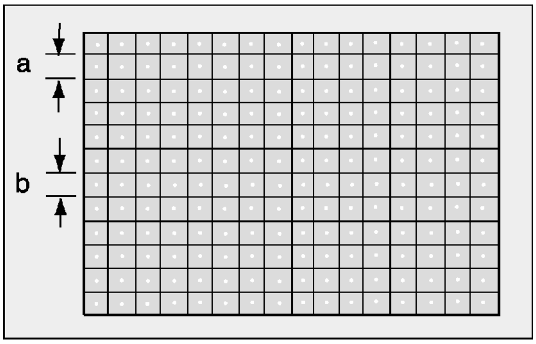
   - Increase “V-S” DATA by one step
   - Adjust “VEAMP” to correct vertical size.

   NOTE
   Repeat until b-a ± 1.5mm

4. Check a and b sizes, If b-a > -1.5mm (in top & bottom shortening case)

   - Decrease “V-S” by one step.
   - Adjust “VEAMP” to correct vertical size

   NOTE
   Repeat until b-a ± 1.5mm



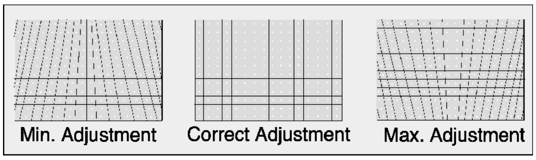
16.9.29. (1080i full) / Trapezoid adjustment

PREPARATION

1. Apply a 1080i pattern
2. Set mode to 4x3 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

PROCEDURE

1. **Enter service mode, select “TRAP” and adjust DATA so that lines at right and left are vertical like a solid line**


Min. Adjustment
Correct Adjustment
Max. Adjustment

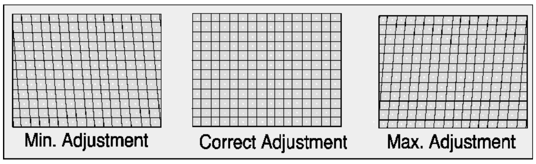
16.9.30. (1080i full) / Parallelogram adjustment

PREPARATION

1. **Apply a 1080i pattern**
2. **Set mode to 4x3 in set-up menu**
3. **Normalize the picture settings.**
4. **Set picture mode to VIVID**

PROCEDURE

1. **Enter service mode, select “PARA” and adjust so that the lines at right and left are vertical like solid line.**


Min. Adjustment
Correct Adjustment
Max. Adjustment

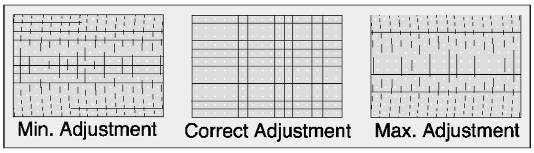
16.9.31. (1080i full) / E-W PCC adjustment

PREPARATION

1. **Apply a 1080i pattern**
2. **Set mode to 4x3 in set-up menu**
3. **Normalize the picture settings.**
4. **Set picture mode to VIVID**

PROCEDURE

1. Confirm that trapezoid adjustment is done.
2. Adjust “SIDE” DATA so that the lines at left and right become vertical


Min. Adjustment
Correct Adjustment
Max. Adjustment

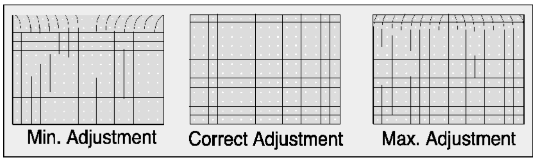
16.9.32. (1080i full) / Corner PCC adjustment

PREPARATION

1. Apply a 1080i pattern
2. Set mode to 4x3 in set-up menu
3. Normalize the picture settings.
4. Set picture mode to VIVID

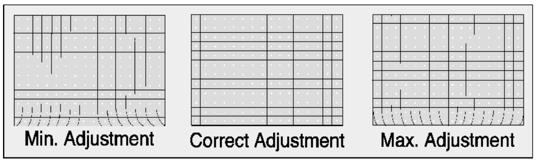
PROCEDURE

1. To adjust upper and lower linearity.
2. Adjust “TOPG” to straighten upper lines


Min. Adjustment
Correct Adjustment
Max. Adjustment

3. Adjust “BTMG” to straighten lower lines

NOTE
If TOP-BOTTOM bending point is not so good, adjust “TOPSL” and “BTMSL” of slice level.


Min. Adjustment
Correct Adjustment
Max. Adjustment

16.10. MTS circuit adjustmens

The MTS circuit adjustments require two steps:

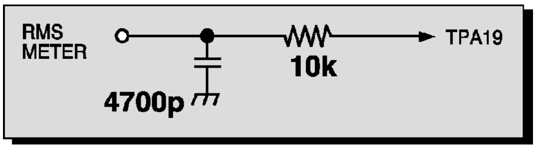
1. Input level adjustment.

2. Stereo separation adjustment.

Input level adjustment / Service DAC adjustment (MTSIN)

PREPARATION

1. **Connect an RMS meter with filter jig as shown in figure to TPA19 (L_OUT)**



2. **Connect an RF signal generator to the RF antenna input.**

PROCEDURE

1. **Apply the following signal from the RF signal generator:**
   - **Video: 100 IRE flat field, 30% modulation.**
   - **Audio: 300Hz, 100% modulation, monaural (70 ±5dB, 75 Ω OPEN, P/S 10dB). Make sure that the 75 μ s pre-emphasis is OFF.**
2. **Adjust the MTS input level adjustment “MTSIN” data until the RMS voltage measured is 106 ± 6.0mVrms.**

Stereo separation adjustment (SEPAH)

PREPARATION

1. **Connect an R.F. signal generator to the RF antenna input.**
2. **Connect a scope to TPA20.**

PROCEDURE

1. **Select stereo mode in audio menu**
2. **Apply the following signal from the RF signal generator:**

- **Video: 100 IRE flat field, 30% modulation.**
- **Audio: 300Hz, 30% modulation, stereo (left only) (70±5dB, 75 Ω OPEN, P/S 10dB).**

NOTE
After setting 30% modulation with P.L. SW and N.R. SW OFF, turn P.L. SW and N.R. SW ON.

3. **In service mode, adjust the MTS Low-Level separation adjustment "SEPAL" data until the amplitude displayed on the scope is minimum.**
4. **Apply the following signal from the RF signal generator:**

   - **Video: 100 IRE flat field, 30% modulation**
   - **Audio: 3KHz, 30% modulation, stereo (left only) (70 ±5dB, 75 Ω OPEN, P/S 10dB).**

   NOTE
   After setting 30% modulation with P.L. SW and N.R. SW OFF, turn P.L. SW and N.R. SW ON.

5. **Adjust the MTS High-level separation adjustment "SEPAH" until the amplitude displayed on the scope is minimum.**
6. **Repeat above steps 2 through 5 until the amplitude is at minimum for both signals.**

16.11. Clock adjustment (CLOCK)

PREPARATION
Connect the frequency counter from TP96 / (A23 pin 21) to cold ground

PROCEDURE

1. **Turn the receiver "OFF" with the A.C. power applied.**
2. **Measure TP96 (A23 pin 21) for the frequency of the waveform and record the reading.**

NOTE

3. **TP96 (A23 pin 21) measurement must have at least four digits of resolution following the decimal point. Example: 000.0000**
4. **Place the receiver into service mode for making electronic adjustment, select the clock adjustment DAC “CLOCK”.**
5. **Calculate and set “CLOCK” based on the following formula:**

$$\boxed{CLOCK = 128 + (0.450)\times10^{6}\frac{\{(732.4220) - TP96[\mathrm{Hz}]\}}{(732.4220)}}$$

NOTE
TP96 (A23 pin 21) measurement will not change regardless of the value stored in CLOCK.

16.12. Service Adjustments Mechanical Controls

WIDTH CORRECTION ADJUSTMENT

Note
Perform this adjustment only when FBT is changed.

Preparation
Connect the DVM (digital voltage meter) (+) lead to connector D10 pin-2 or TPQ27; and (-) lead to connector D10 pin-4.

Procedure

1. **Apply a black pattern.**
2. **Adjust R524 on D-Board so that the voltage on connector D10 pin-2 or TPQ27 is 1.8±0.1V on D-Board.**

FOCUS (PART OF T551)

Preparation
Apply a crosshatch pattern with dots.

Procedure

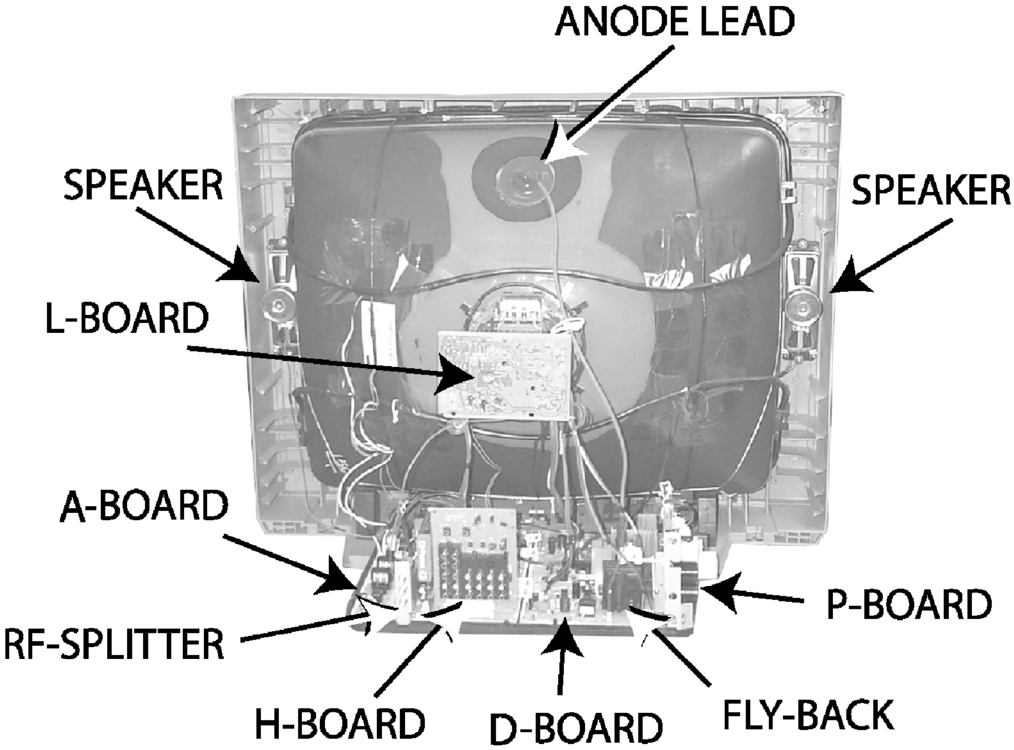
1. **Adjust the FOCUS control to obtain the sharpest and clearest dot pattern.**

   - **F1 focus control adjusts vertically.**
   - **F2 focus control adjusts horizontally.**
   - **Use this two controls to adjust focus, until best overall picture is obtained.**

17. Identification of components

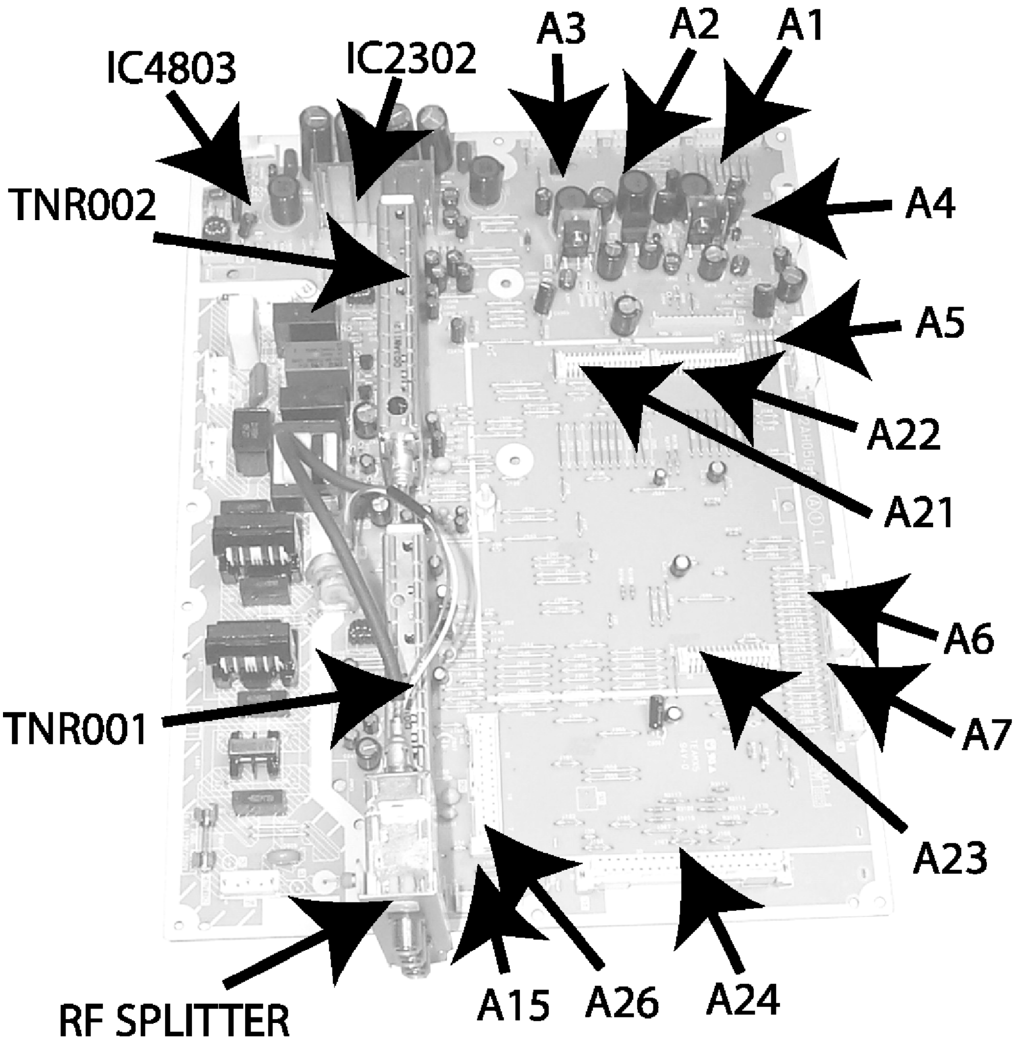
17.1. TV with back cover removed (may vary depending on model)

TV View withback cover removed


ANODE LEAD
SPEAKER
SPEAKER
L-BOARD
A-BOARD
P-BOARD
RF-SPLITTER
H-BOARD
D-BOARD
FLY-BACK

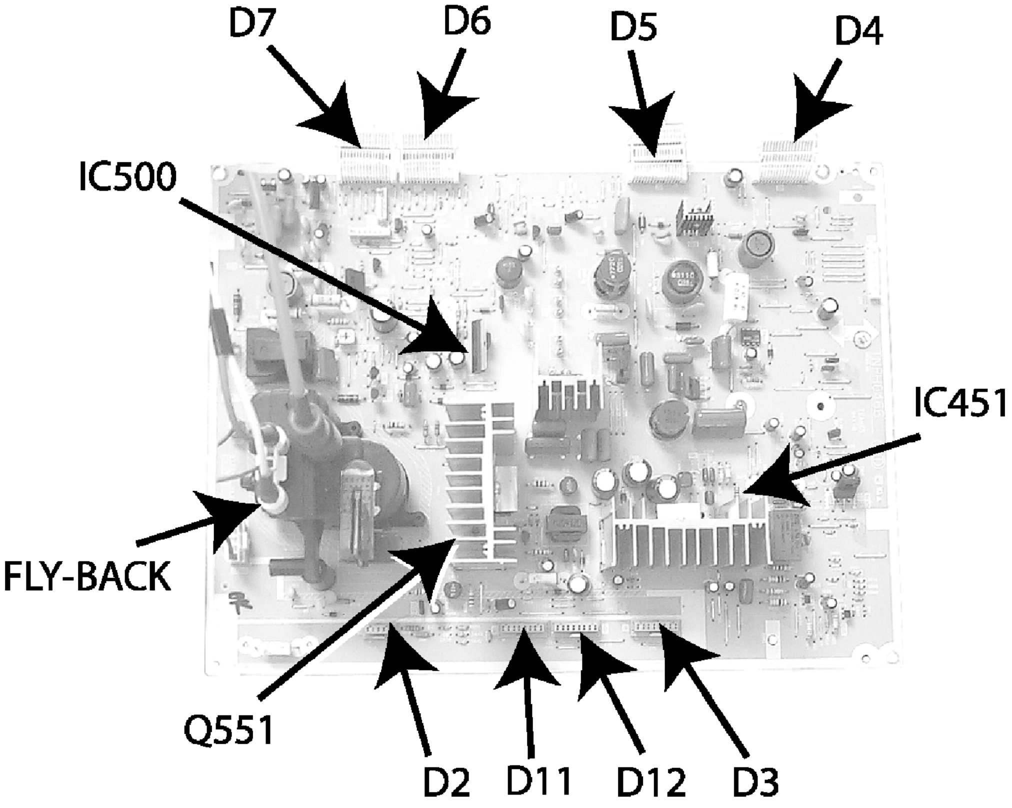
17.2. A-Board

A-Board view


IC4803
IC2302
A3
A2
A1
TNR002
A4
A5
A22
A21
A6
A7
TNR001
A23
RF SPLITTER
A15
A26
A24

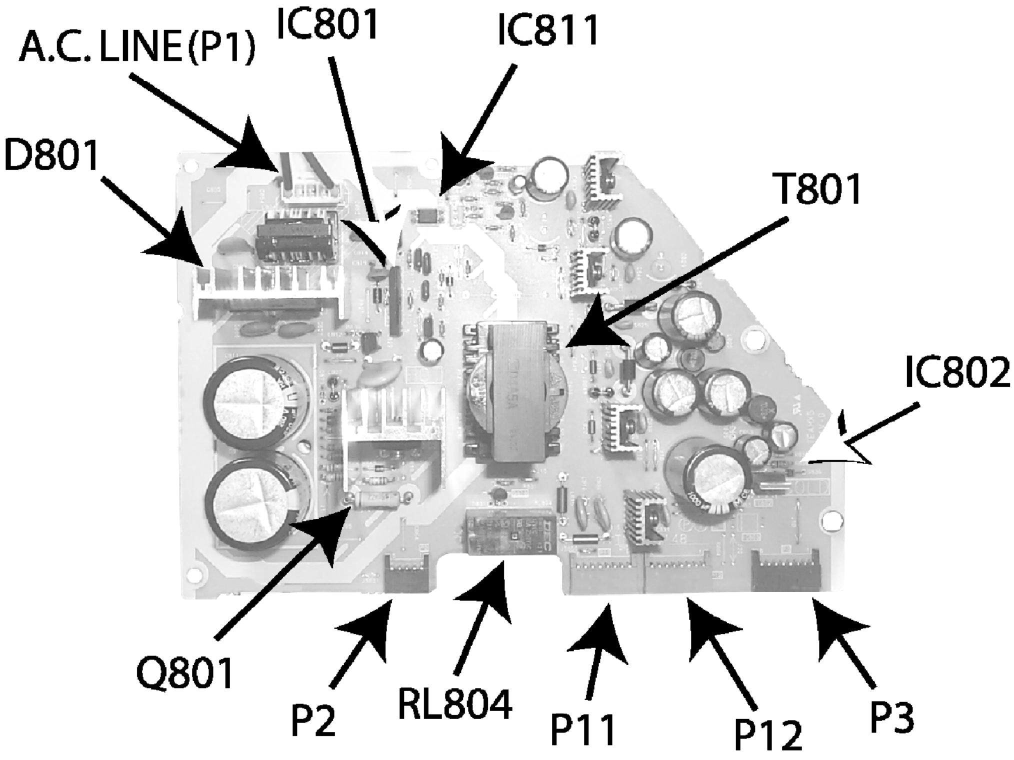
17.3. D-Board

D-Board view


D7
D6
D5
D4
IC500
IC451
FLY-BACK
Q551
D2
D11
D12
D3

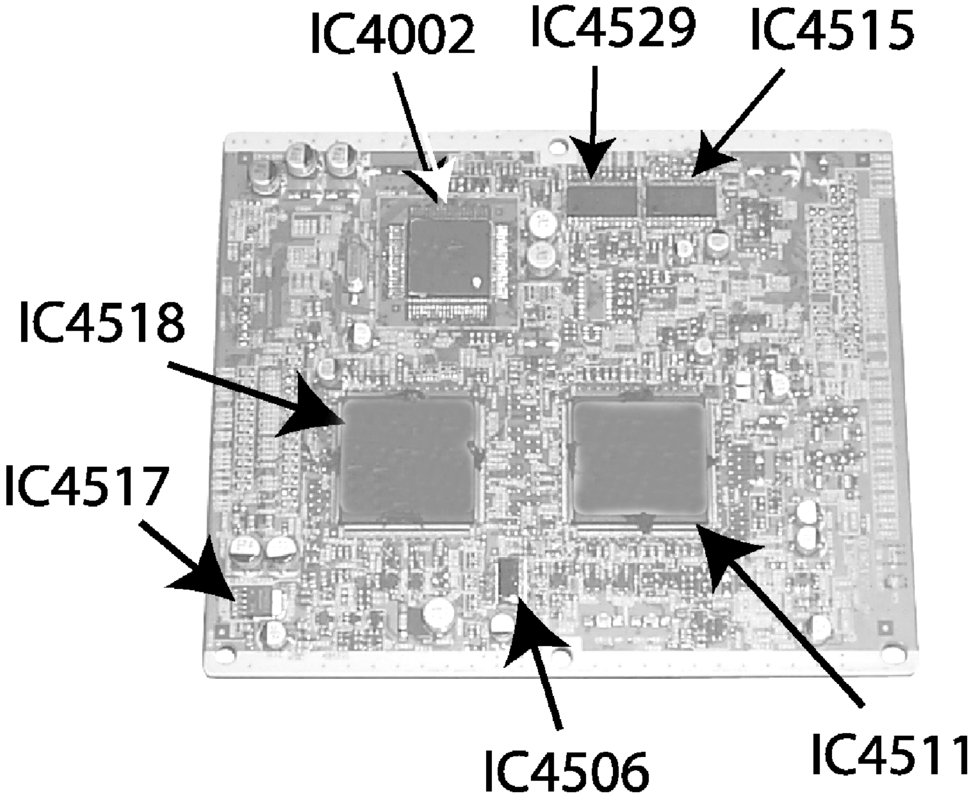
17.4. P-Board

P-Board view


A.C. LINE (P1)
IC801
IC811
D801
T801
IC802
Q801
P2
RL804
P11
P12
P3

17.5. DG-Board top

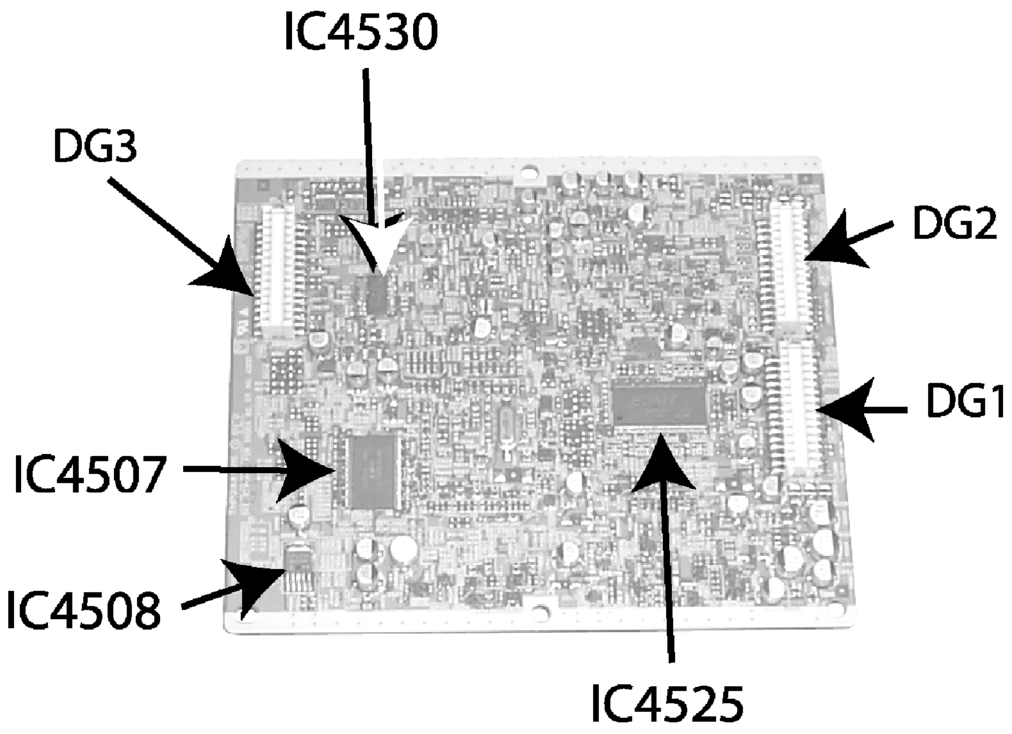
DG-Board top view


IC4002
IC4529
IC4515
IC4518
IC4517
IC4506
IC4511

NOTE:
Please ADD "4" to all IC part numbers, EXAMPLE: On board is IC506, then by adding "4" is IC4506

17.6. DG-Board bottom

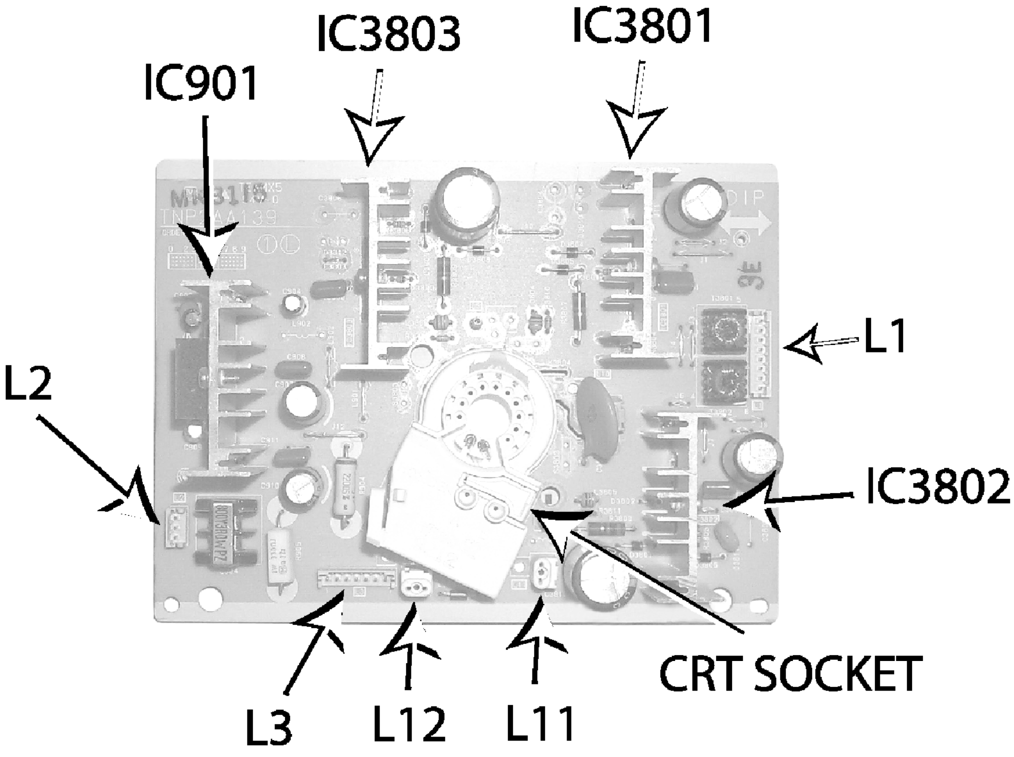
DG-Board bottom view


IC4530
DG3
DG2
DG1
IC4507
IC4508
IC4525

NOTE:
Please ADD “4” to all IC part numbers, EXAMPLE: On board is IC525, then by adding “4” is IC4525

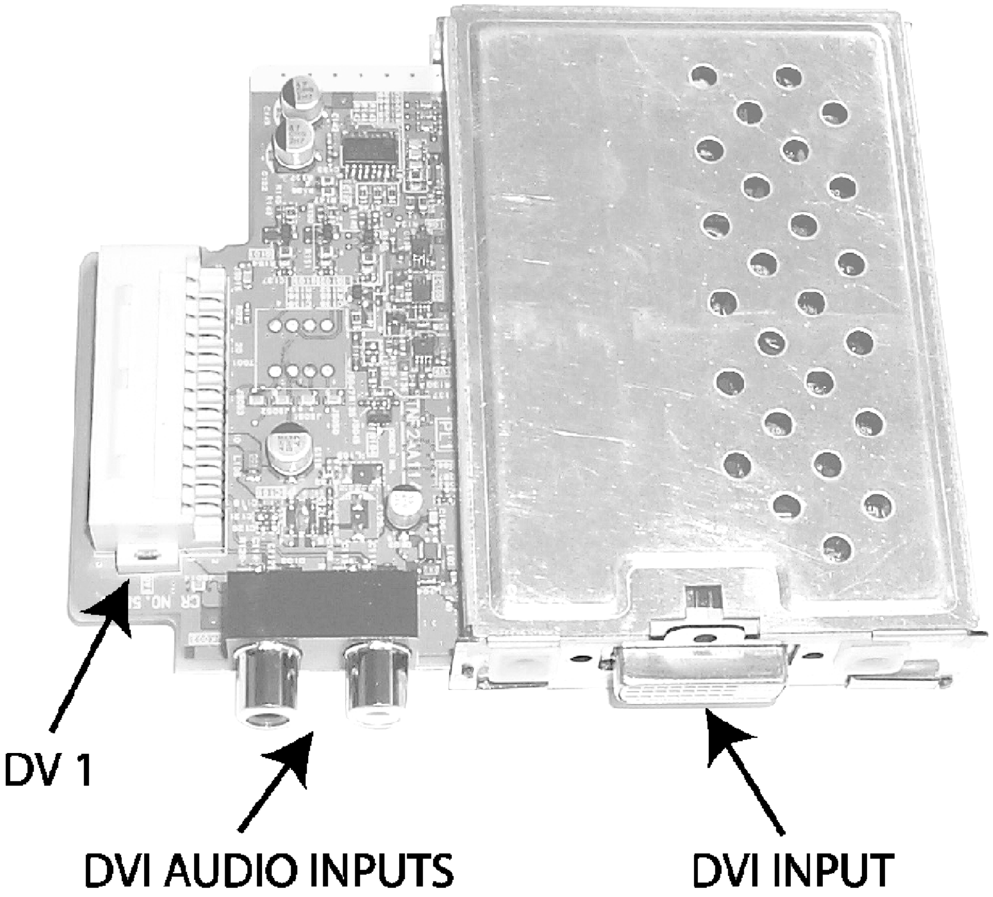
17.7. L-Board

L-Board view

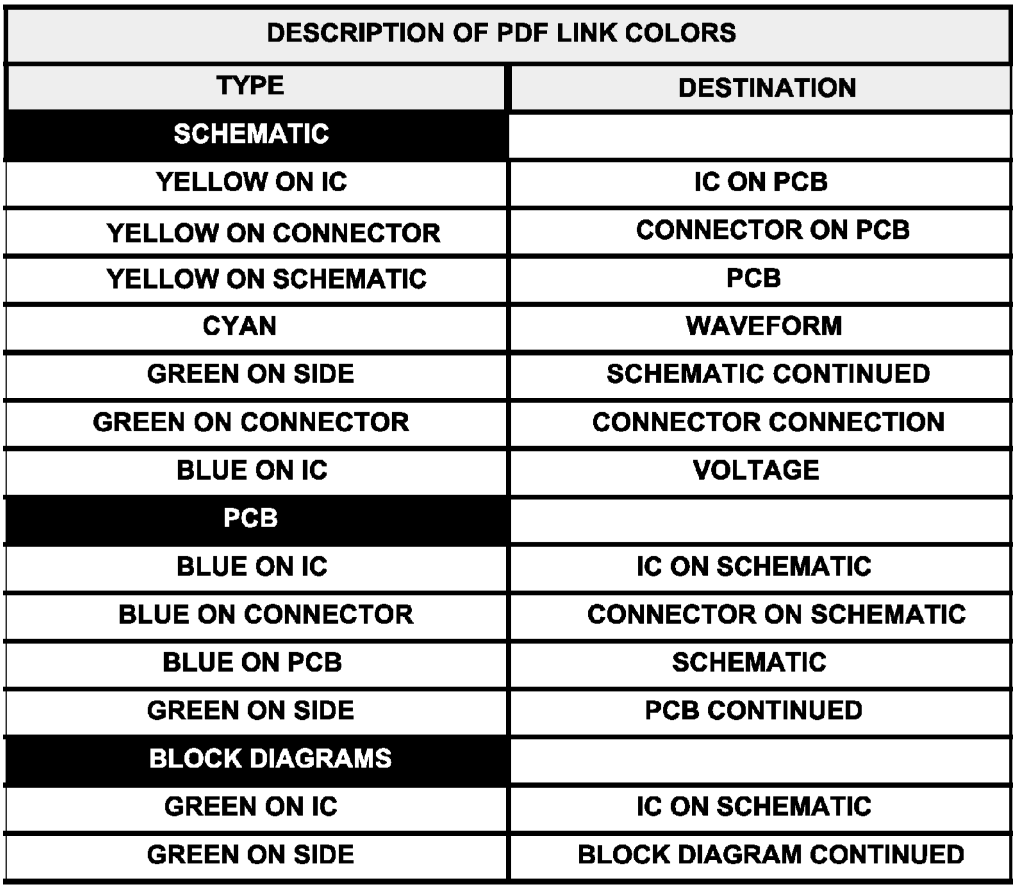

IC3803
IC3801
IC901
L1
L2
IC3802
CRT SOCKET
L3
L12
L11

17.8. DV-Board (only for HL models)

DV-Board view


DV 1
DVI AUDIO INPUTS
DVI INPUT

18. Reference of PDF links color



DESCRIPTION OF PDF LINK COLORS

TYPE	DESTINATION
SCHEMATIC	
YELLOW ON IC	IC ON PCB
YELLOW ON CONNECTOR	CONNECTOR ON PCB
YELLOW ON SCHEMATIC	PCB
CYAN	WAVEFORM
GREEN ON SIDE	SCHEMATIC CONTINUED
GREEN ON CONNECTOR	CONNECTOR CONNECTION
BLUE ON IC	VOLTAGE
PCB	
BLUE ON IC	IC ON SCHEMATIC
BLUE ON CONNECTOR	CONNECTOR ON SCHEMATIC
BLUE ON PCB	SCHEMATIC
GREEN ON SIDE	PCB CONTINUED
BLOCK DIAGRAMS	
GREEN ON IC	IC ON SCHEMATIC
GREEN ON SIDE	BLOCK DIAGRAM CONTINUED

19. Conductor Views

19.1. A-Board 1 of 2

19.2. A-Board 2 of 2

19.3. D-Board 1 of 2

19.4. D-Board 2 of 2

19.5. DG-Board top 1 of 4

19.6. DG-Board top 2 of 4

19.7. DG-Board top 3 of 4

19.8. DG-Board top 4 of 4

19.9. DG-Board bottom 1 of 4

19.10. DG-Board bottom 2 of 4

19.11. DG-Board bottom 3 of 4

19.12. DG-Board bottom 4 of 4

19.13. DV-Board top 1 of 2

19.14. DV-Board top 2 of 2

19.15. DV-Board bottom 1 of 2

19.16. DV-Board bottom 2 of 2

19.17. P-Board

19.18. L-Board

19.19. H-Board

19.20. K-Board

19.21. G-Board HL 1 of 2

19.22. G-Board HL 2 of 2

19.23. G-Board HXC 1 of 2

19.24. G-Board HXC 2 of 2

20. Block Diagrams

20.1. Audio Block Diagram

20.2. Video Block Diagram

21. Schematic Diagrams

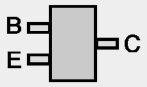
21.1. Schematic notes in english

Notes:

IMPORTANT SAFETY NOTICE

THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES THAT ARE IMPORTANT FOR PROTECTION FROM X-RADIATION, FIRE AND ELECTRICAL SHOCK HAZARDS. WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS DESIGNATED WITH A ⚠ IN THE SCHEMATIC.

CHIP TRANSISTOR LEAD DESIGNATION



SCHEMATIC NOTES

1. Resistors are carbon 1/4W unless noted otherwise.
2. Capacitors are ceramic 50V unless noted otherwise.
3. Coil value notes is inductance in µH.
4. Test point indicated by ● ; Test point but no pin ○.
5. Components indicated with ⚠ are critical parts and replacement should be made with manufacture specified replacement parts only.
6. ▬ (**BOLD LINE**) indicates the route of B+ supply.
7. The schematic diagrams are current at the time of printing and are subject to change without notice.
8. Ground symbol ⏚ indicates **HOT GROUND CONNECTION**; ⊥ indicates COLD GROUND.

NOTE: All other component symbols are used for engineering design purposes.

VOLTAGE MEASUREMENTS

1. Voltage measurement:
   - AC input to the Receiver is 120V. NTSC (HD, 1125i & 525P when applicable) signal generator is connected to the antenna of the Receiver. (Color bar pattern of 100 IRE white and 7.5 IRE black.)
   - All Picture and Audio adjustments are set to Normalize.
     TV ANT/CABLE - (Set-Up Menu) in TV/ANT Mode
     Volume - Min.
     TV/Video SW - TV position
     Audio Mode - Stereo
   - Voltage readings are nominal and may vary ±10% on active devices. Some voltage reading will vary with signal strength and picture content.
   - Supply voltages are nominal.
2. Ground symbol ⏚ indicates ground lead connection of meter.
   Incorrect ground connection will result in erroneous readings.

*CAUTION: **Incorrect ground connection of the test equipment will result in erroneous readings.***

WAVEFORM MEASUREMENTS

1. ③ indicates waveform measurement. (Measurement can be taken at the best accessible location in common to the indicated point.)
2. Taken with an NTSC signal generator connected to the antenna terminal. (NTSC color bar pattern of 8 bars of EIA colors, 100 IRE white and 7.5 IRE black.)
3. Customer Controls (Picture/Audio Menu) are set to Normalize. Volume is set to “MIN”.
4. All video and color waveforms are taken with a wideband scope and a probe with low capacitance (10 to 1). Shape and peak altitudes may vary depending on the type of Oscilloscope used and its settings.
5. Ground symbol ⏚ shown on waveform number indicates (Hot) ground lead connection of the Oscilloscope.

CAUTION: Incorrect ground connection of the test equipment will result in erroneous readings.

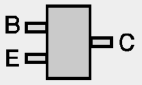
21.2. Schematic notes in spanish

Notas

NOTA DE SEGURIDAD

LOS DIAGRAMAS ELÉCTRICOS INCLUYEN CARACTERÍSTICAS ESPECIALES MUY IMPORTANTES PARA LA PROTECCIÓN CONTRA RAYOS-X, QUEMADURAS Y DESCARGAS ELÉCTRICAS. CUANDO SE DE SERVICIO ES IMPORTANTE USAR PARA REEMPLAZO DE COMPONENTES CRITICOS, SOLO PARTES ESPECIFICADAS POR EL FABRICANTES. LOS COMPONENTES CRITICOS ESTAN SEÑALADOS EN LOS DIAGRAMAS POR EL SIMBOLO ⚠.

IDENTIFICACIÓN DE TERMINALES PARA TRANSISTORES EN *CHIP*



NOTAS DE LOS DIAGRAMAS

1. Las Resistencias son de Carbón de 1/4W, a menos que se indique otra característica.
2. Los Capacitores son de Cerámica para 50V, a menos que se indique otra característica.
3. El valor indicado de las Bobinas es la inductancia expresada en μH.
4. Los puntos de prueba en la terminal de algún componente son indicados por ● Los puntos de prueba fuera de los componentes se indican con ○.
5. Los componentes señalados con el símbolo ⚠ son considerados componentes críticos y deben ser reemplazados sólo con las partes especificadas por el fabricante.
6. ▬ (**LINEA GRUESA**) indica las líneas de alimentación de los Voltajes B+.
7. Los diagramas eléctricos están sujetos a cambio sin previo aviso.
8. El símbolo ⏚ indica que es una conexión a **Tierra Caliente** y el símbolo ⏚ indica conexión a **Tierra Fría**.

NOTA: Los demas símbolos de componentes incluidos son usados con fines de diseño.

MEDICIÓN DE VOLTAJES

1. Medición de voltaje:
   - El voltaje de entrada al Receptor es de 120V de Corriente Alterna. Un generador de patrones con formato NTSC se conecta a la entrada de la antena. (Patrón de Barras de Colores con 100 IREs para el Blanco y 7.5 IREs para el Negro.)
   - Los ajustes de los Menus Picture y Audio se normalizan.
     En el Menú Set-Up, en la opción ANTENA, se selecciona el modo de CABLE.
     El nivel de Volumen se minimiza.
     De los modos TV y Video, seleccionar el modo TV.
     Seleccionar modo Estereo del Audio.
   - Las mediciones de los voltajes son nominales y pueden variar hasta 10% en componentes en funcionamiento. Las lecturas de los voltajes pueden variar por la potencia de la señal y el contenido de la imagen.
   - Las fuentes de voltajes son nominales.
2. El símbolo ⏚ indica el tipo de tierra que se utiliza en la conexión del medidor.

PRECAUCION: SI no se utiliza la conexión a la tierra adecuada, se obtendrán mediciones equivocadas y podría dañar el equipo de medición.

MEDICIÓN DE FORMAS DE ONDA

1. Un símbolo como ③ indica el punto para medir una señal. (La medición puede hacerse en el punto con mayor accesibilidad, siempre que sea común al indicado.)
2. Se midieron utilizando un generador con formato NTSC conectado a la terminal de la antena. (Patrón de 8 Barras de Colores EAI, formato NTSC de 100 IREs para el Blanco y 7.5 IREs para el Negro.)
3. Los ajustes de usuario de los Menus PICTURE y AUDIO se normalizaron. Posteriormente el nivel de volumen se ajusta al mínimo.

banda alta y con un punta de prueba de baja capacitancia (10 a 1). La forma y amplitud de las ondas puede variar según el tipo de osciloscopio que se utilice y sus características.

5. El símbolo de tierra ⏚ que aparece junto al número de la forma de onda, indica que se utiliza conexión a **Tierra Caliente** en el extremo negativo de la punta de prueba.

PRECAUCION: Si no se utiliza la conexión a la tierra adecuada, se obtendrán

ajusta al mínimo.

4. Las formas de onda de Video y Color fueron tomadas con un osciloscopio de

mediciones equivocadas y podría dañar el equipo de medición.

21.3. A-Board schematic 1 of 3

21.4. A-Board schematic 2 of 3

21.5. A-Board schematic 3 of 3

21.6. D-Board schematic 1 of 4

21.7. D-Board schematic 2 of 4

21.8. D-Board schematic 3 of 4

21.9. D-Board schematic 4 of 4

21.10. DG-Board schematic 1 of 6

21.11. DG-Board schematic 2 of 6

21.12. DG-Board schematic 3 of 6

21.13. DG-Board schematic 4 of 6

21.14. DG-Board schematic 5 of 6

21.15. DG-Board schematic 6 of 6

21.16. DV-Board schematic 1 of 3

21.17. DV-Board schematic 2 of 3

21.18. DV-Board schematic 3 of 3

21.19. P-Board schematic 1 of 2

21.20. P-Board schematic 2 of 2

21.21. L-Board schematic 1 of 2

21.22. L-Board schematic 2 of 2

21.23. H-Board schematic 1 of 2

21.24. H-Board schematic 2 of 2

21.25. K-Board schematic

21.26. G-Board (HL) schematic 1 of 2

21.27. G-Board (HL) schematic 2 of 2

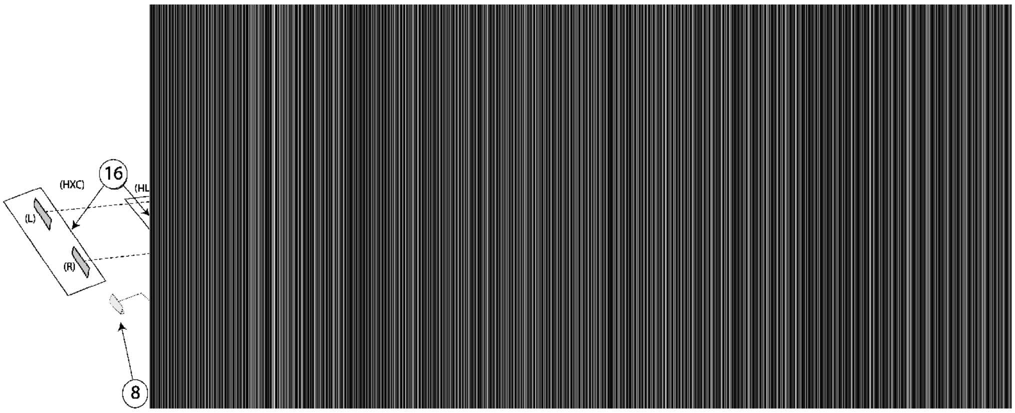
21.28. G-Board (HXC) schematic 1 of 2

21.29. G-Board (HXC) schematic 2 of 2

21.30. Voltages

21.31. Waveforms

22. Parts Location



NOTE:
Appearance may vary depending on the model

23. Parts list

23.1. Description of abbreviations guide

Important Safety Notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use manufacturer's specified parts.

Abbreviation of part name and description

1. Resistor
Example :
ERD25TJ104 **C** 100KΩ, **J**, 1/4W
Type Allowance

Type	Allowance
C : Carbon	F : ± 1%
F : Fuse	G : ± 2%
M : Metal Oxide Metal Film	J : ± 5% K : ± 10%
S : Solid	M : ± 20%
W : Wire Wound	

2. Capacitor
Example :
ECKF1H103ZF **C** 0.01μF, **Z**, 50V
Type Allowance

Type	Allowance
C : Carbon	C : ± 0.25pF
E : Electrolytic	D : ± 0.5pF
P : Polyester Polypropylene	F : ± 1pF G : ± 3%
T : Tantalum	J : ± 5%
	K : ± 10%
	L : ± 15%
	M : ± 20%
	P : ± 100%, -0%
	Z : ± 80%, -20%

23.2. Parts list

Ref. No.	Part No.	Part Name & Description	Remarks
		CAPACITORS	
C038	**EEUFC1A471B**	**CAP E 470UF-10V**	
C039	**ECA1HM4R7B**	**CAP E 4.7UF-50V**	
C041	**ECA1HM2R2B**	**CAP E 2.2UF-50V**	
C042	**ECA1VM470B**	**CAP E 47UF/35V**	
C043	**ECA1HM4R7B**	**CAP E 4.7UF-50V**	
C045	**ECA1HM2R2B**	**CAP E 2.2UF-50V**	
C047	**ECA1HM010B**	**CAP E 1UF-50V**	
C050	**TCJ2VC1H101J**	**CAP C 100PF-J-50V**	
C051	**TCJ2VC1H101J**	**CAP C 100PF-J-50V**	
C058	**ECA1HMR22B**	**CAP E .22UF-50V**	
C059	**ECA1HMR22B**	**CAP E .22UF-50V**	
C060	**ECA1HM4R7B**	**CAP E 4.7UF-50V**	
C405	**ECA1HM102E**	**CAP E 1000UF-50V**	
C406	**ECQV1H105JL3**	**CAP P 1.0UF-J-50V**	
C407	**ECKR1H103ZF5**	**CAP C .01UF-Z-50V**	
C408	**ECA1VM102E**	**CAP E 1000UF-35V**	
C409	**ECA1VM102E**	**CAP E 1000UF-35V**	
C411	**ECQB1H472JF3**	**CAP P 4700PF-J-50V**	
C412	**ECQB1224KF3**	**CAP P .22UF-K-100V**	
C413	**ECA1HM010B**	**CAP E 1UF-50V**	
C414	**ECQB1H272JF3**	**CAP P 2700PF-J-50V**	
C415	**ECQB1473KF3**	**CAP P .047UF-K-100V**	
C416	**ECQB1H472JF3**	**CAP P 4700PF-J-50V**	

Ref. No.	Part No.	Part Name & Description	Remarks
C419	EEUNA1A470B	CAP E 47UF-125V	
C420	ECA1CM101B	CAP E 100UF/16V	
C421	ECA1CM101B	CAP E 100UF/16V	
C422	ECA1HM010B	CAP E 1UF-50V	
C434	ECA1HM100B	CAP E 10UF/50V	
C438	ECQB1H102JF3	CAP P 1000PF-J-50V	
C439	TCJ2VB1H103K	CAP C .01UF-K-50V	
C440	ECA1HM100B	CAP E 10UF/50V	
C457	ECEA1EN4R7UB	CAP E 4.7UF-25V	
C501	ECA1VHG101B	CAP E 100UF-35V	
C502	ECQV1H104JL3	CAP P .10UF-J-50V	
C503	ECKR2H102KB5	CAP C 1000PF-K-500V	
C506	ECA1CM471B	CAP E 470UF-16V	
C509	ECKR3A222KBP	CAP C .0022UF-K-1KV	
C510	TCJ2VC1H221J	CAP C 220PF-J-50V	
C511	ECWH20562JVB	CAP P 5600PF-J-2KV	⚠
C513	ECQF6103JZH	CAP P .010UF-J-630V	⚠
C514	ECWH20272JVY	CAP P 2700PF-J-2KV	⚠
C515	ECKR3A222KBP	CAP C .0022UF-K-1KV	
C516	ECWF2224JSR	CAP M .22UF-J-200V	⚠
C517	ECWF2684JSR	CAP M .26UF-J-200V	⚠
C518	ECKW3D681KBR	CAP C 680PF-K-2KV	⚠
C519	ECKW3D681KBR	CAP C 680PF-K-2KV	⚠
C520	ECQB1H183JF3	CAP P .018UF-J-50V	⚠
C521	ECWF2224JSR	CAP M .22UF-J-200V	
C522	ECWH20202JVY	CAP P 2000PF-J-2KV	⚠
C523	ECWH20562JVB	CAP C 5600PF-J-2KV	⚠
C524	ECQB1224JF3	CAP P .22UF-J-100V	
C525	ECA1HM470B	CAP E 47UF-50V	
C526	ECA2EM470E	CAP E 47UF-250V	
C527	ECKR2H102KB5	CAP C 1000PF-K-500V	
C528	ECA1HM4R7B	CAP E 4.7UF-50V	⚠
C530	ECQE2155JFB	CAP P 1.5UF-J-200V	
C531	ECA160V33UE	CAP E 33UF/160V	
C532	ECQF6472JZH	CAP P .0047UF-J-630V	⚠
C535	ECA1HHG471E	CAP E 470UF-50V	
C536	ECEA1HN100UB	CAP E 10UF/50V	
C537	ECQB1H473JF3	CAP P .047UF-J-50V	
C538	ECA1CM471B	CAP E 470UF-16V	
C539	ECA1CM471B	CAP E 470UF-16V	
C541	ECQE2333JFB	CAP P .033UF-J-200V	⚠
C573	ECQB1H104JF3	CAP P .10UF-J-50V	
C574	ECA1CM470B	CAP E 47UF/16V	
C575	ECKR1H103ZF5	CAP C .01UF-Z-50V	
C701	ECQB1H182JF3	CAP P 1800PF-J-50V	
C704	ECQB1H152JF3	CAP P 1500PF-J-50V	
C705	TCJ2VC1H681J	CAP C 680PF-J-50V	
C706	ECKW3D271JBP	CAP C 270PF-J-2KV	
C709	ECQE1106KFB	CAP P 1000PF-K-1KV	
C712	ECKR1H221KB5	CAP C 220PF-K-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C713	ECKR1H221KB5	CAP C 220PF-K-50V	
C714	ECA1HM2R2B	CAP E 2.2UF-50V	
C759	ECQM2104KZW	CAP P .1UF-K-200V	
C801	ECQU2A104BN9	CAP P .10UF-B-250V	⚠
C802	ECQU2A823BN9	CAP P .082UF-B-250V	⚠
C803	ECQU2A823BN9	CAP P .082UF-B-250V	⚠
C804	ECQU2A823BN9	CAP P .082UF-B-250V	⚠
C805	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C806	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C807	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C808	ECQB1H102JF3	CAP P 1000PF-J-50V	
C809	ECQB1H333JF3	CAP P .033UF-J-50V	
C810	EC0S2DA821DB	CAP E 820UF-200V	⚠
C811	EC0S2DA821DB	CAP E 820UF-200V	⚠
C812	ECA1CM471B	CAP E 470UF-16V	
C813	ECA1HM010B	CAP E 1UF-50V	
C814	ECKW2H472PU7	CAP C 4700PF-P-500V	⚠
C815	ECA1EM471B	CAP E 470UF-25V	
C816	ECKW3A272KBP	CAP C 2700PF-K-1KV	
C817	ECQB1H332JF3	CAP P 3300PF-J-50V	
C819	TACCQ221T50V	CAP C 220PF/50V	
C820	ECA1EHG221B	CAP E 220UF-25V	
C821	ECKW3D272KBP	CAP C 2700PF-K-2KV	
C822	ECQB1H393JF3	CAP P .039UF-J-50V	
C823	ECQB1H222JF3	CAP P 2200PF-J-50V	
C826	ECA1VM221B	CAP E 220UF-35V	
C827	ECQB1H333JF3	CAP P .033UF-J-50V	
C828	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C830	EETHC2C102H	CAP E 1000UF-160V	⚠
C831	ECKR3A102KBP	CAP C 1000PF-K-1KV	
C832	ECA1VHG102E	CAP E 1000UF/35V	
C833	ECKR3A471KBP	CAP C 470PF-K-1KV	
C834	EEUFC1V222E	CAP E 2200UF-35V	
C838	EEUFC1E272E	CAP E 2700UF-25V	
C839	ECKR3A151KBP	CAP C 150PF-K-1KV	
C840	ECA1EMH471B	CAP E 470UF-25V	
C841	ECA1EM222B	CAP E 2200UF-25V	
C842	ECKR3A331KBP	CAP C 330PF-K-1KVDC	
C843	ECA1VHG102E	CAP E 1000UF/35V	
C844	ECKR3A471KBP	CAP C 470PF-K-1KV	
C845	ECA1CM101B	CAP E 100UF/16V	
C846	ECA1HM010B	CAP E 1UF-50V	
C847	ECA1VM470B	CAP E 47UF/35V	
C848	ECA1CM101B	CAP E 100UF/16V	
C850	EEUFC1E272E	CAP E 2700UF-25V	
C851	ECA1CM221B	CAP E 10UF-16V	
C856	ECQU2A103MNB	CAP P .010UF-M-250V	⚠
C857	TCJ2VB1H103K	CAP C .01UF-K-50V	
C859	ECA1VHG471B	CAP E 470UF-35V	
C860	ECKCNA222MEB	CAP C 2200PF-M-125V	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C861	ECKCNA222MEB	CAP C 2200PF-M-125V	⚠
C876	ECA1EM471B	CAP E 470UF-25V	
C877	EEUFC1A471B	CAP E 470UF-10V	
C878	ECA1EM471B	CAP E 470UF-25V	
C879	EEUFC1A471B	CAP E 470UF-10V	
C880	TCJ2VB1H103K	CAP C .01UF-K-50V	
C885	ECA1VM471B	CAP E 470UF-35V	
C886	EEUFC1C471B	CAP E 470UF-16V	
C887	ECA1CM471B	CAP E 470UF-16V	
C888	ECA1EM101B	CAP E 100UF-25V	
C889	ECA1CM101B	CAP E 100UF/16V	
C890	ECA1CM221B	CAP E 10UF-16V	
C891	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C892	ECA0JM221B	CAP E 220UF-6.3V	
C893	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C894	ECA1VM101B	CAP E 100UF-35V	
C895	ECA1CM221B	CAP E 10UF-16V	
C896	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C897	ECA1EM471B	CAP E 470UF-25V	
C898	TCJ2VB1H103K	CAP C .01UF-K-50V	
C899	TCJ2VB1H103K	CAP C .01UF-K-50V	
C901	ECJ2VF1H103Z	CAP C .01UF-Z-50V	
C902	ECA1CM101B	CAP E 100UF/16V	
C904	ECA1CM101B	CAP E 100UF/16V	
C906	ECA1CM101B	CAP E 100UF/16V	
C907	ECA2EM220E	CAP E 22UF-250V	
C908	ECQE2103KF3	CAP P .010UF-K-200V	
C909	ECA1CM101B	CAP E 100UF/16V	
C910	ECA2CM100B	CAP E 10UF-160V	
C911	ECQE2103KF3	CAP P .010UF-K-200V	
C1024	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C1025	ECA0JM222B	CAP E 2200UF-6.3V	
C1051	ECJ2VF1H103Z	CAP C .01UF-Z-50V / CT-32HL43G/UG, / CT-36HL43G/UG	
C1051	TCJ2VB1H103K	CAP C .01UF-K-50V / CT-32HXC43G/UG	
C1052	ECA1AM470B	CAP E 47UF-10V / CT-32HL43G/UG / CT-36HL43G/UG	
C1052	ECA1HM470B	CAP E 47UF-50V / CT-32HXC43G/UG	
C1504	ECQB1H103JF3	CAP P .01UF-J-50V	
C1505	ECA1CM470B	CAP E 47UF/16V	
C1506	TCJ2VF1H102Z	CAP C 1000PF-Z-50V	
C1507	ECA1CM220B	CAP E 22UF-16V	
C1508	ECKW3D151KBP	CAP C 150PF-K-2KV	
C1509	ECQM6223KZW	CAP P .022UF-K-600V	
C1510	ECQM4223KZW	CAP P .022UF-K-400V	
C1511	ECA1HM010B	CAP E 1UF-50V	
C1512	ECKW3D102KBP	CAP C 1000PF-K-2KV	
C1513	ECKW3D471KBP	CAP C 470PF-K-2KVDC	
C1515	ECKR3A152KBP	CAP C 1500PF-K-1KVDC	
C1516	ECKR3A561KBP	CAP C 560PF-K-1KV	
C1517	ECKR3A151KBP	CAP C 150PF-K-1KV	
C1518	ECKR3A102KBP	CAP C 1000PF-K-1KV	
C1519	ECA1VM470B	CAP E 47UF/35V	
C1520	ECA1HM100B	CAP E 10UF/50V	
C1521	ECA0JM331B	CAP E 330UF-6.3V	
C2202	ECEA1HKA2R2B	CAP E 2.2UF-50V	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
C2203	ECEA1HKA4R7B	CAP E 4.7UF-50V	
C2204	AP106K016CAE	CAP T 10UF/16V	
C2205	ECA1HM010B	CAP E 1UF-50V	
C2206	ECQB1H223JF3	CAP P .022UF-J-50V	
C2207	AP335K016CAE	CAP T 3.3UF/16V	
C2208	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2209	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2210	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2211	ECA1HM100B	CAP E 10UF/50V	
C2212	ECQB1H473JF3	CAP P .047UF-J-50V	
C2215	ECA1CM101B	CAP E 100UF/16V	
C2218	ECA1HMR47B	CAP E .47UF-50V	
C2303	ECA1EM101B	CAP E 100UF-25V	
C2304	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C2325	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2330	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2331	ECA1HM100B	CAP E 10UF/50V	
C2332	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2333	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2334	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C2342	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2343	ECEA1CN100UB	CAP E 10UF-16V	
C2344	ECQB1H224JF3	CAP P .22UF-J-50V	
C2345	EEUFC1E222E	CAP E 2200UF-25V	
C2346	TCJ2VB1H561K	CAP C 560PF-K-50V	
C2347	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2348	ECA1HM100B	CAP E 10UF/50V	
C2349	ECEA1CN100UB	CAP E 10UF-16V	
C2351	F1J1C225A083	CAP C 2.2UF-Z-16V	
C2352	EEUFC1E222E	CAP E 2200UF-25V	
C2353	EEUFC1E222E	CAP E 2200UF-25V	
C2354	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2355	TCJ2VC1H270J	CAP C 27PF-J-50V	
C2356	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2357	TCJ2VB1H331K	CAP C 330PF-K-50V	
C2358	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2359	TCJ2VB1H331K	CAP C 330PF-K-50V	
C2360	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2361	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2362	TCJ2VB1H471K	CAP C 470PF-K-50V	
C2363	TCJ2VB1H682K	CAP C 6800PF-K-50V	
C2364	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2365	ECJ3VB1H104K	CAP C .1UF-K-50V	
C2366	EEUFC1E222E	CAP E 2200UF-25V	
C2367	ECQB1H224JF3	CAP P .22UF-J-50V	
C2368	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2369	TCJ2VB1H561K	CAP C 560PF-K-50V	
C2370	ECEA1HN100UB	CAP E 10UF/50V	
C2371	ECEA1HN100UB	CAP E 10UF/50V	
C2373	TCJ2VB1H682K	CAP C 6800PF-K-50V	
C2374	ECEA1HN100UB	CAP E 10UF/50V	
C2375	ECEA1HN100UB	CAP E 10UF/50V	
C2378	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C2380	ECA1HM010B	CAP E 1UF-50V	

Ref. No.	Part No.	Part Name & Description	Remarks
C2451	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2452	TCJ2VB1H332K	CAP C .0033UF-K-50V	
C2453	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2455	TCJ2VB1H472K	CAP C 4700PF-K-50V	
C2456	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2457	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2458	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2459	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2460	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2461	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2462	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2463	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2464	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2465	ECJ2VB1C104K	CAP C .1UF-K-16V	
C2466	TCJ2VB1H472K	CAP C 4700PF-K-50V	
C2468	TCJ2VB1H333K	CAP C .033UF-K-50V	
C2469	TCJ2VB1H332K	CAP C .0033UF-K-50V	
C2470	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C2474	ECA1CM101B	CAP E 100UF/16V	
C2475	TCJ2VB1H103K	CAP C .01UF-K-50V	
C3001	ECA1CM470B	CAP E 47UF/16V	
C3002	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C3004	ECA1CM470B	CAP E 47UF/16V	
C3010	ECEA1CKA101B	CAP E 100UF-16V	
C3011	ECJ2VF1C104Z	CAP C .1UF-Z-16V	
C3012	ECJ2VB1C104K	CAP C .1UF-K-16V	
C3013	ECEA1CKA101B	CAP E 100UF-16V	
C3014	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3015	ECJ2VB1C104K	CAP C .1UF-K-16V	
C3016	ECJ2VB1C104K	CAP C .1UF-K-16V	
C3017	ECJ2VB1C104K	CAP C .1UF-K-16V	
C3018	ECEA1CKA100B	CAP E 10UF-16V	
C3020	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / CT-32HL43G/UG, CT-36HL43G/UG	
C3021	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / CT-32HL43G/UG, CT-32HL43G/UG	
C3031	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3032	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3033	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3034	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3035	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3036	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3037	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3038	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3039	TCJ2VB1H103K	CAP C .01UF-K-50V	
C3042	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3043	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3044	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3045	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3046	TCJ2VB1H103K	CAP C .01UF-K-50V	
C3049	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3050	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3051	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3052	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3054	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3055	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3056	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C3057	TCJ2VB1H152K	CAP C 1500PF-K-50V	
C3058	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3059	ECA1CM471B	CAP E 470UF-16V	
C3100	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3102	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3104	TCJ2VF1H103Z	CAP C .01UF-Z-50V	
C3106	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3109	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3111	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3115	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3117	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3121	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V / CT-32HL43G, CT-32HXC43G/UG / CT-36HL43G/UG	
C3126	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3127	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3128	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3129	ECJ2YB1A105K	CAP C 1.0UF-K-125V	
C3132	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3154	ECA1HM010B	CAP E 1UF-50V	
C3155	ECA1HM010B	CAP E 1UF-50V	
C3158	TCJ2VB1H152K	CAP C 1500PF-K-50V / CT-32HXC43G/UG	
C3159	TCJ2VB1H152K	CAP C 1500PF-K-50V / CT-32HXC43G/UG	
C3160	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3161	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3162	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3163	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3164	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3165	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3166	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3167	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3168	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3170	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3172	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3173	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3174	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3175	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3182	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3183	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3184	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3185	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3186	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3187	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3188	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3189	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3190	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3191	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3192	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3193	ECJ2VF1C105Z	CAP C 1.0UF-Z-16V	
C3194	TCJ2VB1H102K	CAP C 1000PF-K-50V	
C3801	ECQE2104KFW	CAP P .10UF-K-200V	
C3802	ECQE2104KFW	CAP P .10UF-K-200V	
C3803	ECQE2104KFW	CAP P .10UF-K-200V	
C3807	ECA2EM470E	CAP E 47UF-250V	

Ref. No.	Part No.	Part Name & Description	Remarks
C3808	ECA2EM470E	CAP E 47UF-250V	
C3809	ECA2EM101E	CAP E 100UF-250V	
C3810	ECA2EM101E	CAP E 100UF-250V	
C3811	ECKC3D332KBN	CAP C 3300PF-K-2KV	
C4805	ECA1CM470B	CAP E 47UF/16V	
C4806	ECQV1H334JL3	CAP P .33UF-J-50V	
C4913	ECEA1CN100UB	CAP E 10UF-16V	
C4914	ECEA1CN100UB	CAP E 10UF-16V	
C4915	ECA1CM220B	CAP E 22UF-16V	
C4916	ECEA1CN220UB	CAP E 22UF-16V	
C4917	ECEA1CN220UB	CAP E 22UF-16V	
C4920	ECJ2VF1H104Z	CAP C .1UF-Z-50V	
C4921	ECA1CM470B	CAP E 47UF/16V	
C4922	ECJ2VB1C104K	CAP C .1UF-K-16V / CT-32HL43G/UG, CT-36HL43G/UG	
C4922	ECQB1H104JF3	CAP P .10UF-J-50V / CT-32HXC43G/UG	
C4923	ECA1VM470B	CAP E 47UF/35V	
C4924	ECA1VM470B	CAP E 47UF/35V	
C4925	ECQB1H104JF3	CAP P .10UF-J-50V	
C4930	EEUFC1E470B	CAP E 47UF-25V / CT-32HL43G/UG, CT-36HL43G/UG	
DIODES			
D006	MAZ43000HF	DIODE ZENER	
D009	MA2C165001VT	DIODE	
D010	MAZ40300MF	DIODE ZENER	
D13	K1ZZ00001205	DIODE	
D402	MAZ42700MF	DIODE ZENER	
D405	B0EAKM000018	DIODE RECTIFIER	
D406	B0EAKM000018	DIODE RECTIFIER	
D407	MA2C165001VT	DIODE	
D408	MA2C165001VT	DIODE	
D410	MA2C165001VT	DIODE	
D411	MA2C165001VT	DIODE	
D412	MA2C165001VT	DIODE	
D452	MA2C165001VT	DIODE	
D468	MAZ40620MF	DIODE ZENER	
D477	MA2C029WBF	DIODE	
D501	D1NL40V70	DIODE	
D502	MAZ41500MF	DIODE ZENER	
D503	B0KZ00000001	DIODE	
D505	MAZ40330MF	DIODE ZENER	
D509	MA2C165001VT	DIODE	
D510	MAZ40820MF	DIODE ZENER	
D511	D1NL40V70	DIODE	
D512	D1NL40V70	DIODE	⚠
D515	D1NL40V70	DIODE	
D516	MAZ40510LF	DIODE ZENER	
D517	D1NL40V70	DIODE	
D518	D1NL40V70	DIODE	
D520	MA167TA5VT	DIODE SWITCHING	
D550	B0HAMP000059	DIODE	
D703	D1NL40V70	DIODE	
D708	MAZ41500MF	DIODE ZENER	
D711	B0AAGR000002	DIODE SWITCHING	
D751	MA2C165001VT	DIODE	
D761	MA2C165001VT	DIODE	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
D801	B0FDAT000001	DIODE	⚠
D802	MA2C700A0F	DIODE	
D803	D4DDF1R50001	DIODE	⚠
D804	MAZ41200MF	DIODE ZENER	
D806	AU01ZV0	DIODE	
D807	MA2C165001VT	DIODE	
D809	D4EAC3910001	DIODE	⚠
D811	B0EAKL000008	DIODE RECTIFIER	
D814	MA2C165001VT	DIODE	
D815	MA2C165001VT	DIODE	
D816	MA2C165001VT	DIODE	
D817	MAZ42200LF	DIODE ZENER	
D818	MAZ42000MF	DIODE ZENER	
D824	B0BA01000046	DIODE	⚠
D825	B0HAPV000011	DIODE	⚠
D826	MA3D690	DIODE	
D827	B0HANM000016	DIODE	
D828	MA3D690	DIODE	
D829	B0HANM000016	DIODE	
D830	MA3D690	DIODE	
D831	MA2C165001VT	DIODE	
D832	MA2C165001VT	DIODE	
D833	MAZ41100HF	DIODE ZENER	
D834	AU02ZV0	DIODE	
D836	AU02ZV0	DIODE	
D839	MAZ40390MF	DIODE ZENER	
D840	MA2C165001VT	DIODE	
D845	MA2C165001VT	DIODE	
D846	MAZ41800MF	DIODE ZENER	
D847	MAZ43000MF	DIODE ZENER	
D848	MA2C165001VT	DIODE	
D850	MA2C165001VT	DIODE	
D851	MA2C165001VT	DIODE	
D861	B0JAME000052	DIODE	
D862	B0JAME000052	DIODE	
D874	B0JCME000025	DIODE	
D875	B0JCME000025	DIODE	
D876	MA2C165001VT	DIODE	
D877	MA2C165001VT	DIODE	
D878	B0JCME000025	DIODE	
D881	B0BA01000046	DIODE ZENER	
D883	B0BA01000046	DIODE ZENER	
D884	TMPG12G3	DIODE	
D889	MA2C165001VT	DIODE	
D893	MA2C165001VT	DIODE	
D894	MA2C165001VT	DIODE	
D898	MA2C165001VT	DIODE	
D899	MA2C165001VT	DIODE	
D1001	LN81RPH	DIODE / CT-32HL43G/UG, CT-36HL43G/UG	
D1001	LN81RPHCF3	DIODE / CT-32HXC43G/UG	
D1501	MAZ40750HF	DIODE ZENER	
D1503	MAZ40300HF	DIODE ZENER	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
D1504	MAZ40200HF	DIODE ZENER	
D1505	B0HACW000002	DIODE	
D1508	MA2C165001VT	DIODE	
D1509	AU02AV0	DIODE	
D1510	AU02AV0	DIODE	
D1513	MA2C165001VT	DIODE	
D2320	MAZ33000ML	DIODE	
D2321	MAZ33000ML	DIODE	
D2322	MA3X152K0L	DIODE	
D2324	MA3X152K0L	DIODE	
D2325	MA3X152K0L	DIODE	
D2326	MAZ42700MF	DIODE ZENER	
D2327	MAZ42700MF	DIODE ZENER	
D3001	MAZ31100ML	DIODE ZENER	
D3002	MAZ31100ML	DIODE ZENER	
D3003	MAZ31100ML	DIODE ZENER	
D3004	MAZ31100ML	DIODE ZENER	
D3005	MAZ31100ML	DIODE ZENER	
D3006	MAZ31100ML	DIODE ZENER	
D3007	MAZ31100ML	DIODE ZENER	
D3008	MAZ31100ML	DIODE ZENER	
D3009	MAZ31100ML	DIODE ZENER	
D3010	MAZ31100ML	DIODE ZENER	
D3011	MAZ31100ML	DIODE ZENER	
D3012	MAZ31100ML	DIODE ZENER	
D3013	MAZ31100ML	DIODE ZENER	
D3014	MAZ31100ML	DIODE ZENER	
D3015	MAZ31100ML	DIODE ZENER	
D3016	MAZ31100ML	DIODE ZENER	
D3017	MAZ31100ML	DIODE ZENER	
D3018	MAZ31100ML	DIODE ZENER	
D3019	MAZ31100ML	DIODE ZENER	
D3020	MAZ31100ML	DIODE ZENER	
D3021	MAZ31100ML	DIODE ZENER	
D3022	MAZ31100ML	DIODE ZENER	
D3023	MAZ31100ML	DIODE ZENER	
D3024	MAZ31100ML	DIODE ZENER	
D3025	MAZ31100ML	DIODE ZENER	
D3026	MAZ31100ML	DIODE ZENER	
D3027	MAZ31100ML	DIODE ZENER	
D3028	MAZ31100ML	DIODE ZENER	
D3029	MAZ31100ML	DIODE ZENER	
D3030	MAZ31100ML	DIODE ZENER	
D3031	MAZ31100ML	DIODE ZENER	
D3032	MAZ31100ML	DIODE ZENER	
D3033	MAZ31100ML	DIODE ZENER	
D3034	MAZ31100ML	DIODE ZENER	
D3035	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-32HXC43UG, / CT-36HL43G/UG	
D3036	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-32HXC43UG, / CT-36HL43G/UG	
D3037	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-32HXC43UG, / CT-36HL43G/UG	
D3038	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-32HXC43UG, / CT-36HL43G/UG	
D3039	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-32HXC43UG, / CT-36HL43G/UG	
D3110	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3111	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	

Ref. No.	Part No.	Part Name & Description	Remarks
D3112	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3113	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3114	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3115	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3116	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3117	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3118	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3119	MAZ31100ML	DIODE ZENER / CT-32HXC43G/UG	
D3151	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-36HL43G/UG	
D3152	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-36HL43G/UG	
D3153	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-36HL43G/UG	
D3154	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-36HL43G/UG	
D3155	MAZ31100ML	DIODE ZENER / CT-32HL43G/UG, CT-36HL43G/UG	
D3156	MAZ31100ML	DIODE ZENER	
D3159	MAZ31100ML	DIODE ZENER	
D3160	MAZ31100ML	DIODE ZENER	
D3801	MAZ41200MF	DIODE ZENER	
D3802	MAZ41200MF	DIODE ZENER	
D3803	MAZ41200MF	DIODE ZENER	
D3804	B0HALP000002	DIODE FAST RECOVERY	
D3805	B0HALP000002	DIODE FAST RECOVERY	
D3806	B0HALP000002	DIODE FAST RECOVERY	
D3807	B0HALP000002	DIODE FAST RECOVERY	
D3808	B0HALP000002	DIODE FAST RECOVERY	
D3809	B0HALP000002	DIODE FAST RECOVERY	
D3811	D4EAB3610002	DIODE	
D4805	MA2C165001VT	DIODE	
D4806	MA2C165001VT	DIODE	
FUSES			
F801	XBA2A00101	FUSE 6.3A 125V	⚠
INTEGRATED CIRCUITS			
IC432	C0ABBA000073	INT. CKT.	
IC433	C0ABBA000073	INT. CKT.	
IC451	LA7876N	INT CKT	
IC500	C0AABB000107	INT CKT	
IC511	AN6914S-E1	INT CKT	
IC751	AN6914S-E1	INT CKT	
IC752	C0ZBZ0000373	INT. CKT.	
IC801	AN8029	INT CKT	⚠
IC802	C0EAS0000024	INT. CKT.	⚠
IC804	B0EBKM000016	DIODE RECTIFIER	
IC811	PC123FY2	INT CKT	⚠
IC871	C0DACMG00001	INT CKT	
IC872	C0DACMG00001	INT CKT	
IC875	C0DACMG00001	INT CKT	
IC876	C0DAZJG00004	INT. CKT.	
IC901	C5AA00000195	INT CKT	
IC1004	TVR2AJ160S	INT CKT / CT-32HL43G/UG, CT-36HL43G/UG	
IC1004	TVR2AJ161S	INT CKT / CT-32HXC43G/UG	
IC1501	C0ABBA000073	INT. CKT.	
IC2201	AN5849S-E1V	INT CKT	
IC2302	C1AA00000645	INT CKT	
IC2304	C0ABBA000073	INT. CKT.	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
IC2451	C1BB00000772	INT CKT / CT-32HL43G/UG, CT-36HL43G/UG	
IC2451	NJW1137MPTE1	INT CKT / CT-32HXC43G/UG	
IC3002	AN15852A-VT	INT CKT	
IC3003	C1AB00000460	INT. CKT.	
IC3801	C1AA00000648	INT CKT (VIDEO OUTPUT AMP	
IC3802	C1AA00000648	INT CKT (VIDEO OUTPUT AMP	
IC3803	C1AA00000648	INT CKT (VIDEO OUTPUT AMP	
IC4803	C0AABB000107	INT. CKT.	
IC4904	C0AABB000107	INT. CKT.	
IC4905	BD3869AF-E2	INT CKT	
RM001	PNA4701M04TV	INT CKT / CT-32HXC43G/UG	
RM001	PNA4701M05TV	INT CKT / CT-32HL43G/UG, CT-36HL43G/UG	
COILS			
J330	EXCELSA39V	FERRITE BEAD	
L009	ELELN330KA	COIL PEAKING 33UH	
L011	ELELN330KA	COIL PEAKING 33UH	
L401	EXCELSA39V	FERRITE BEAD	
L431	ELESN101KA	COIL PEAKING 100UH	
L432	EXCELDR25V	FERRITE BEAD	
L500	TALL08TR56MA	COIL	
L503	TALL13N103JB	COIL	
L506	EXCELSA24T	FERRITE BEAD	
L551	ELH5L7720	COIL	⚠
L553	ELH5L8110	COIL	⚠
L711	ELESN100KA	COIL PEAKING 10UH	
L751	ELC18B151G	FILTER	
L752	TALFP15B152K	COIL	
L759	EXCELSA35T	FERRITE BEAD	
L801	G0B650H00002	COIL	⚠
L802	G0B332H00002	COIL	⚠
L803	G0B332H00002	COIL	⚠
L804	G0B102H00009	COIL	⚠
L807	EXCELDR35V	FERRITE BEAD	
L812	EXCELSA35B	FERRITE BEAD	
L813	EXCELSA39E	FERRITE BEAD	
L814	TALL08T101KA	LINE FILTER	
L815	EXCELSA39E	FERRITE BEAD	
L816	EXCELSA39E	FERRITE BEAD	
L819	EXCELSA24T	FERRITE BEAD	
L820	EXCELSA24T	FERRITE BEAD	
L821	EXCELDR35V	FERRITE BEAD	
L824	EXCELDR35V	FERRITE BEAD	
L825	G0A151D00002	COIL	
L826	TLUADTB820K	COIL	
L827	TALL08T470KA	COIL	
L829	EXCELDR35V	FERRITE BEAD	
L850	ELESN101JA	COIL PEAKING 100UH	
L875	G0A151ZA0004	COIL	
L876	G0A151ZA0004	COIL	
L878	G0A331ZA0004	COIL	
L890	EXCELDR35V	FERRITE BEAD	
L891	G0A101E00003	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L904	G0B800H00001	COIL	
L1501	TALFP15B222K	COIL	
L2201	ELESN100JA	COIL PEAKING 10UH	
L2331	ELC12E390	COIL	
L2332	ELC12E390	COIL	
L2334	EXCELDR35V	FERRITE BEAD	
L2335	EXCELDR35V	FERRITE BEAD	
L2338	G0B800H00001	COIL	
L2339	G0B800H00001	COIL	
L2341	G0A330G00010	COIL	
L2342	G0A330G00010	COIL	
L3001	EXCELSA35T	FERRITE BEAD	
L3008	TALC325T100K	COIL	
L3010	TALC325T100K	COIL	
L3012	ELJPA2R2MF	CHIP INDUCTOR 2.2UH / CT-32HL43G/UG, CT-36HL43G/UG	
L3013	ELJPA100KF	CHIP INDUCTOR 10UH / CT-32HL43G/UG, CT-36HL43G/UG	
L3804	TALV35VB1R0J	COIL	
L3805	TALV35VB1R0J	COIL	
L3806	TALV35VB1R0J	COIL	
L3807	EXCELSA24T	FERRITE BEAD	
TRANSISTORS			
Q007	2SD601ARTX	TRANSISTOR	
Q404	2SD601ASTX	TRANSISTOR	
Q405	2SA1309ATA	TRANSISTOR	
Q406	2SD601ARTX	TRANSISTOR	
Q501	B1CEML000001	TRANSISTOR	
Q502	2SK2847LBMAT	TRANSISTOR	
Q503	2SD601ARTX	TRANSISTOR	
Q509	2SC1473QR	TRANSISTOR	
Q510	2SC1473QR	TRANSISTOR	
Q512	2SC1685QRSTA	TRANSISTOR	
Q513	2SD601ARTX	TRANSISTOR	
Q551	B1BAJW000001	TRANSISTOR	
Q562	2SC1473QRTA	TRANSISTOR	
Q751	2SK2538000LB	TRANSISTOR	
Q752	2SD601ARTX	TRANSISTOR	
Q754	2SD601ARTX	TRANSISTOR	
Q755	B1DEGG000010	TRANSISTOR	
Q801	2SK2917LB	TRANSISTOR	⚠
Q802	2SC1685QRSTA	TRANSISTOR	
Q803	2SC1685QRSTA	TRANSISTOR	
Q804	2SA1309ATA	TRANSISTOR	
Q805	2SC1685QRSTA	TRANSISTOR	
Q806	2SC1685QRSTA	TRANSISTOR	
Q807	2SC1318STA	TRANSISTOR	
Q808	2SC1685QRSTA	TRANSISTOR	
Q854	2SA19610QAHW	TRANSISTOR	
Q860	2SD601ARTX	TRANSISTOR	
Q861	2SD601ARTX	TRANSISTOR	
Q862	2SD601ARTX	TRANSISTOR	
Q863	2SD601ARTX	TRANSISTOR	
Q880	2SB709ARTX	TRANSISTOR	
Q1501	B1DEDR000005	TRANSISTOR	
Q1502	B1DEDR000005	TRANSISTOR	

[illegible]	[illegible]	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q1503	B1BAAT000001	TRANSISTOR	
Q1504	2SC1685QRSTA	TRANSISTOR	
Q1505	2SC1685QRSTA	TRANSISTOR	
Q1506	2SD601ARTX	TRANSISTOR	
Q2301	2SB709ARTX	TRANSISTOR	
Q2302	2SB709ARTX	TRANSISTOR	
Q2304	2SD601ARTX	TRANSISTOR	
Q2306	2SD601ARTX	TRANSISTOR	
Q2307	2SB709ARTX	TRANSISTOR	
Q2313	2SD601ARTX	TRANSISTOR	
Q2314	2SD601ARTX	TRANSISTOR	
Q2334	2SD601ARTX	TRANSISTOR	
Q2335	2SD601ARTX	TRANSISTOR	
Q2336	2SB709ARTX	TRANSISTOR	
Q2337	2SD601ARTX	TRANSISTOR	
Q2338	2SD601ARTX	TRANSISTOR	
Q2339	2SD601ARTX	TRANSISTOR	
Q2340	2SB709ARTX	TRANSISTOR	
Q2451	2SD601ARTX	TRANSISTOR	
Q2452	2SD601ARTX	TRANSISTOR	
Q3026	2SB709ARTX	TRANSISTOR	
Q3157	2SD601ARTX	TRANSISTOR	
Q3158	2SD601ARTX	TRANSISTOR	
Q4901	2SD601ARTX	TRANSISTOR	
RELAYS			
RL451	TSE10814	RELAY	
RL801	K6B1AGA00043	RELAY	⚠
RL802	TSE10814	RELAY	⚠
RL803	K6B1AGA00042	RELAY	⚠
RL804	K6B1CGA00075	RELAY	⚠
RESISTORS			
R050	ERJ6GEYJ101V	RES M 100-J-1/10W	
R051	ERJ6GEYJ101V	RES M 100-J-1/10W	
R052	ERJ6GEYJ101V	RES M 100-J-1/10W	
R053	ERJ6GEYJ101V	RES M 100-J-1/10W	
R078	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R079	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R080	ERJ6GEYJ220V	RES M 22-J-1/10W	
R081	ERDS2TJ220T	RES C 22-J-1/4W	
R407	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R408	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R409	ERJ6GEYJ563V	RES M 56K-J-1/10W	
R410	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R411	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R412	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R413	ERDS2TJ104T	RES C 100K-J-1/4W	
R414	ERX1SJR82P	RES M .82-J-1/2W	
R415	ERG3FJ331H	RES M 330-J-3W	
R417	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R418	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R419	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R420	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R421	ERJ6ENF1602V	RES M 16K-F-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R422	ERJ6ENF2001V	RES M 2K-F-1/10W	
R423	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R424	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R425	ERDS1FJ1R0P	RES C 1.0-J-1/2W	
R426	ERJ6GEYJ123V	RES M 12K-J-1/10W	
R427	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R428	ER0S2THF9761	RES M 9.76K-F-1/4W	
R429	ERJ6GEYJ182V	RES M 1.8K-J-1/10W	
R430	ER0S2THF1500	RES M 150-F-1/4W	
R431	ER0S2THF2000	RES M 200-F-1/4W	
R434	ERX12SJ1R8P	RES M 1.8-J-1/2W	
R435	ERX12SJ2R2P	RES M 2.2-J-1/2W	
R436	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R440	ERG1SJ102P	RES M 1K-J-1W	
R441	ERX1SJ1R0P	RES M 1.0-J-1W	
R444	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R445	ERX1SJ1R0P	RES M 1.0-J-1W	
R447	ERJ6ENF6800V	RES M 680-F-1/10W	
R449	ERJ6ENF3901V	RES M 3.9K-F-1/10W	
R464	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R465	ERJ6ENF2201V	RES M 2.2K-F-1/10W	
R470	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R471	ERJ6ENF1003V	RES M 100K-F-1/10W	
R472	ERJ6ENF2002V	RES M 20K-F-1/10W	
R476	ERJ6GEYJ823V	RES M 82K-J-1/10W	
R479	ERJ6GEYJ821V	RES M 820-J-1/10W	
R481	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R495	ERJ6ENF2203V	RES M 220K-F-1/10W	
R501	ERDS2TJ104T	RES C 100K-J-1/4W	
R502	ERDS2TJ680T	RES C 68-J-1/4W	
R503	ERG3FJ181H	RES M 180-J-3W	
R504	ERG1SJ102P	RES M 1K-J-1W	
R505	ERG1SJ100P	RES M 10-J-1W	
R510	ERG2FJ331H	RES M 330-J-2W	
R512	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R513	ERC12GK103D	RES C 10K-K-1/2W	
R514	ER0S2THF3242	RES M 32.4K-F-1/4W	
R515	ER0S2THF2612	RES M 26.1K-F-1/4W	
R516	ERDS2TJ101T	RES C 100-J-1/4W	
R517	ERG1SJ103P	RES M 10K-J-1W	
R518	ERDS1FJ1R5T	RES C 1.5-J-1/2W	⚠
R520	ERQ14AJ2R2E	RES F 2.2-J-1/4W	⚠
R521	ERJ6ENF6041V	RES M 6.04K-F-1/10W	⚠
R522	ERJ6ENF2321V	RES M 2.32K-F-1/10W	⚠
R524	EVMEAGA00B14	CONTROL 10K	
R525	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R526	ERQ12HJ1R0P	RES F 1.0-J-1/2W	
R527	ERDS2TJ472T	RES C 4.7K-J-1/4	
R528	ERQ1CJP120S	RES F 12-J-1W	
R529	ERDS2TJ273T	RES C 27K-J-1/4W	
R530	ERDS2TJ123T	RES C 12K-J-1/4W	
R531	ERDS2TJ221T	RES C 220-J-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R532	ERDS1FJ1R0P	RES C 1.0-J-1/2W	⚠
R533	ERDS1FJ1R0P	RES C 1.0-J-1/2W	⚠
R534	ER0S2THF9102	RES M 91K-F-1/4W	
R535	ERJ6GEYJ562V	RES M 5.6K-J-1/10W	
R536	ERDS2TJ101T	RES C 100-J-1/4W	
R538	ERJ6GEYJ101V	RES M 100-J-1/10W	
R540	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R541	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R550	ER0S2THF5361	RES M 5.36K-F-1/4W	
R560	ERJ6GEYJ101V	RES M 100-J-1/10W	
R561	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R562	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R586	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R587	ERJ6GEYJ101V	RES M 100-J-1/10W	
R588	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R589	ERJ6GEYJ101V	RES M 100-J-1/10W	
R595	ERDS2TJ273T	RES C 27K-J-1/4W	
R701	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R702	ERJ6GEYJ101V	RES M 100-J-1/10W	
R703	ERJ6GEYJ101V	RES M 100-J-1/10W	
R704	ERJ6GEYJ202V	RES M 2K-J-1/10W	
R705	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R706	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R707	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R708	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R709	ERDS1FJ680T	RES C 68-J-1/2W	
R711	ERJ6GEYJ682V	RES M 6.8K-J-1/10W	
R712	ERJ6GEYJ162V	RES M 1.6K-J-1/10W	
R714	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R715	ERJ6GEYJ751V	RES M 750-J-1/10W	
R717	ERF5AK4R7H	RES W 4.7-K-5W	
R718	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R720	ERJ6GEYJ152V	RES M 1.5K-J-1/10W	
R787	ERQ14AJ220P	RES F 22-J-1/4W	
R788	ERDS2TJ473T	RES C 47K-J-1/4W	
R800	ERU5TCK1R5T	RES F 1.5-K-5W	⚠
R801	ERC14GK824D	RES C 820K-K-1/4W	
R802	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R803	ERDS2TJ680T	RES C 68-J-1/4W	
R804	ERDS2TJ331T	RES C 330-J-1/4W	
R805	ERG2FJ121H	RES M 120-J-2W	
R806	ERDS2TJ473T	RES C 47K-J-1/4W	
R807	ERDS2TJ820T	RES C 82-J-1/4W	
R808	ERDS2TJ680T	RES C 68-J-1/4W	
R809	ERDS2TJ472T	RES C 4.7K-J-1/4	
R810	ERDS2TJ473T	RES C 47K-J-1/4W	
R811	ERDS2TJ472T	RES C 4.7K-J-1/4	
R812	ERDS2TJ473T	RES C 47K-J-1/4W	
R813	ERDS1FJ152T	RES C 1.5K-J-1/2W	
R814	ERG3FJ223	RES M 22K-J-3W	
R815	ERDS2TJ331T	RES C 330-J-1/4W	
R816	ERDS2TJ471T	RES C 470-J-1/4W	
R817	ER0S2THF1371	RES M 1.37K-F-1/4W	

Ref. No.	Part No.	Part Name & Description	Remarks
R818	ERDS2TJ220T	RES C 22-J-1/4W	
R819	ERDS1FJ820T	RES C 82-J-1/2W	
R820	ERDS1FJ120T	RES C 12-J-1/2W	
R821	ERX12SJ1R8P	RES M 1.8-J-1/2W	
R822	ERX12SJ1R8P	RES M 1.8-J-1/2W	
R823	ERDS2TJ102T	RES C 1K-J-1/4W	
R824	ERDS2TJ153T	RES C 15K-J-1/4W	
R825	ERDS2TJ104T	RES C 100K-J-1/4W	
R826	ERDS2TJ103T	RES C 10K-J-1/4W	
R828	ERDS2TJ103T	RES C 10K-J-1/4W	
R829	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R830	ERJ6GEYJ272V	RES M 2.7K-J-1/10W	
R831	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R832	ERD75TAJ825	RES C 8.2MEG-J-3/4W	⚠
R833	ERDS2TJ104T	RES C 100K-J-1/4W	
R834	ERDS2TJ104T	RES C 100K-J-1/4W	
R835	ERDS2TJ101T	RES C 100-J-1/4W	
R836	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R837	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R838	ERDS1FJ330T	RES C 30-J-1/2W	
R839	ERDS2TJ222T	RES C 2.2K-J-1/4W	
R840	ERDS2TJ470T	RES C 47-J-1/4W	
R841	ERDS2TJ104T	RES C 100K-J-1/4W	
R842	ERDS2TJ223T	RES C 22K-J-1/4W	
R843	ERDS2TJ681T	RES C 680-J-1/4W	
R844	ERDS2TJ104T	RES C 100K-J-1/4W	
R845	ERDS2TJ332T	RES C 3.3K-J-1/4W	
R846	ERJ6GEYJ182V	RES M 1.8K-J-1/10W	
R847	ERDS1FJ473T	RES C 47K-J-1/2W	
R852	ERDS1FJ562T	RES C 56K-J-1/2W	
R854	ERDS1TJ102T	RES C 1K-J-1/2W	
R855	ERDS2TJ913T	RES C 91K-J-1/4W	
R856	ERDS2TJ123T	RES C 12K-J-1/4W	
R857	ERX1SJ1R0P	RES M 1.0-J-1W	
R858	ERX1SJ1R0P	RES M 1.0-J-1W	
R859	ERDS2TJ272T	RES C 2.7K-J-1/4W	
R860	ERDS1FJ102T	RES C 1K-J-1/2W	
R861	ERX12SJR22P	RES M .22-J-1/2W	
R862	ERX12SJR22P	RES M .22-J-1/2W	
R863	ERX12SJR22P	RES M .22-J-1/2W	
R865	ERDS2TJ102T	RES C 1K-J-1/4W	
R867	ERJ6GEYJ101V	RES M 100-J-1/10W	
R868	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R869	ERJ6GEYJ101V	RES M 100-J-1/10W	
R870	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R875	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R876	ERJ6GEYJ393V	RES M 39K-J-1/10W	
R877	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R878	ERJ6GEYJ393V	RES M 39K-J-1/10W	
R879	ERDS1FJ750T	RES C 75-J-1/2W	
R888	ERJ6ENF1601V	RES M 1.6K-F-1/10W	
R889	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R890	ERJ6ENF1501V	RES M 1.5K-F-1/10W	
R891	ERJ6ENF4700V	RES M 470-F-1/10W	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
R892	ERJ6ENF7500V	RES M 750-F-1/10W	
R893	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R894	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R895	ERJ6GEYJ104V	RES M 100K-J-1/10W	
R896	ERJ6GEYJ203V	RES M 20K-J-1/10W	
R899	ERG1SJ273P	RES M 27K-J-1W	
R901	ERJ6GEYJ101V	RES M 100-J-1/10W	
R902	ERJ6ENF56R0V	RES M 56.0-F-1/10W	
R904	ERG3FJ221H	RES M 220-J-3W	
R905	ERQ1CJP331S	RES F 330-J-1W	
R1025	ERDS2TJ101T	RES C 100-J-1/4W	
R1026	ERDS2TJ101T	RES C 100-J-1/4W	
R1051	ERJ6ENF1002V	RES M 10K-F-1/10W	
R1052	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1053	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1054	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R1055	ERJ6GEYJ512V	RES M 5.1K-J-1/10W	
R1056	ERJ6GEYJ912V	RES M 9.1K-J-1/10W	
R1057	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R1058	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1059	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1060	ERJ6GEYJ470V	RES M 47-J-1/10W	
R1061	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1062	ERJ6GEYJ182V	RES M 1.8K-J-1/10W / CT-32HL43G/UG, CT-36HL43G/UG	
R1062	ERJ6GEYJ331V	RES M 330-J-1/10W / CT-32HXC43G/UG	
R1501	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1503	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	
R1504	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1505	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1506	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1507	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R1508	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R1514	ERJ6GEYJ331V	RES M 330-J-1/10W	
R1515	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1521	ERDS2TJ104T	RES C 100K-J-1/4W	
R1522	ERDS2TJ104T	RES C 100K-J-1/4W	
R1523	ERDS2TJ104T	RES C 100K-J-1/4W	
R1525	ERJ6GEYJ122V	RES M 1.2K-J-1/10W	
R1526	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1527	ERC14GK334D	RES C 330K-K-1/4W	
R1528	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R1529	ERG1SJ332P	RES M 3300-J-1W	
R1530	ERG3FJ331H	RES M 330-J-3W	
R1531	ERG3FJ681H	RES M 680-J-3W	
R1532	ERC12GK104D	RES C 100K-K-1/2W	
R1533	ERC12GK125D	RES C 1.2M-K-1/2W	
R1534	ERDS2TJ125T	RES C 1.2M-J-1/WW	
R1535	ERJ6GEYJ203V	RES M 20K-J-1/10W	
R1536	ERG2FJ123H	RES M 12K-J-2W	
R1537	ERJ6GEYJ101V	RES M 100-J-1/10W	
R1538	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1539	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R1540	ERJ6GEYJ560V	RES M 56-J-1/10W	
R2203	ERJ6GEYJ222V	RES M 2.2K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R2206	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2207	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2221	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2301	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2302	ERJ6GEYJ392V	RES M 3.9K-J-1/10W	
R2303	ERJ6GEYJ271V	RES M 270-J-1/10W	
R2304	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2305	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2307	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2308	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2309	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2313	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2314	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2324	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2325	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2326	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2327	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2328	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2329	ERJ6GEYJ432V	RES M 4.3K-J-1/10W	
R2330	ERDS2TJ333T	RES C 33K-J-1/4W	
R2332	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2333	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2334	ERJ6ENF1100V	RES M 110-F-1/10W	
R2335	ERJ6ENF1100V	RES M 110-F-1/10W	
R2336	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2337	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2338	ERJ6GEYJ332V	RES M 3.3K-J-1/10W	
R2339	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2341	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2342	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2345	ERJ6GEYJ183V	RES M 18K-J-1/10W	
R2346	ERJ6GEYJ432V	RES M 4.3K-J-1/10W	
R2348	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2349	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2351	ERJ6GEYJ473V	RES M 47K-J-1/10W	
R2352	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R2353	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2354	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R2355	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2356	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2357	ERJ6ENF1303V	RES M 130K-F-1/10W	
R2358	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2359	ERJ6GEYJ683V	RES M 68K-J-1/10W	
R2360	ERJ6ENF4701V	RES M 4.7K-F-1/10W	
R2361	ERJ6ENF1202V	RES M 12K-F-1/10	
R2362	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2363	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2364	ERJ6ENF1001V	RES M 1K-F-1/10W	
R2365	ERJ6ENF1202V	RES M 12K-F-1/10	
R2366	ERJ6ENF1001V	RES M 1K-F-1/10W	
R2367	ERJ6GEYJ101V	RES M 100-J-1/10W	
R2368	ERJ6ENF5232V	RES M 5.32K-F-1/10W	
R2369	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R2370	ERJ6GEYJ102V	RES M 1K-J-1/10W	

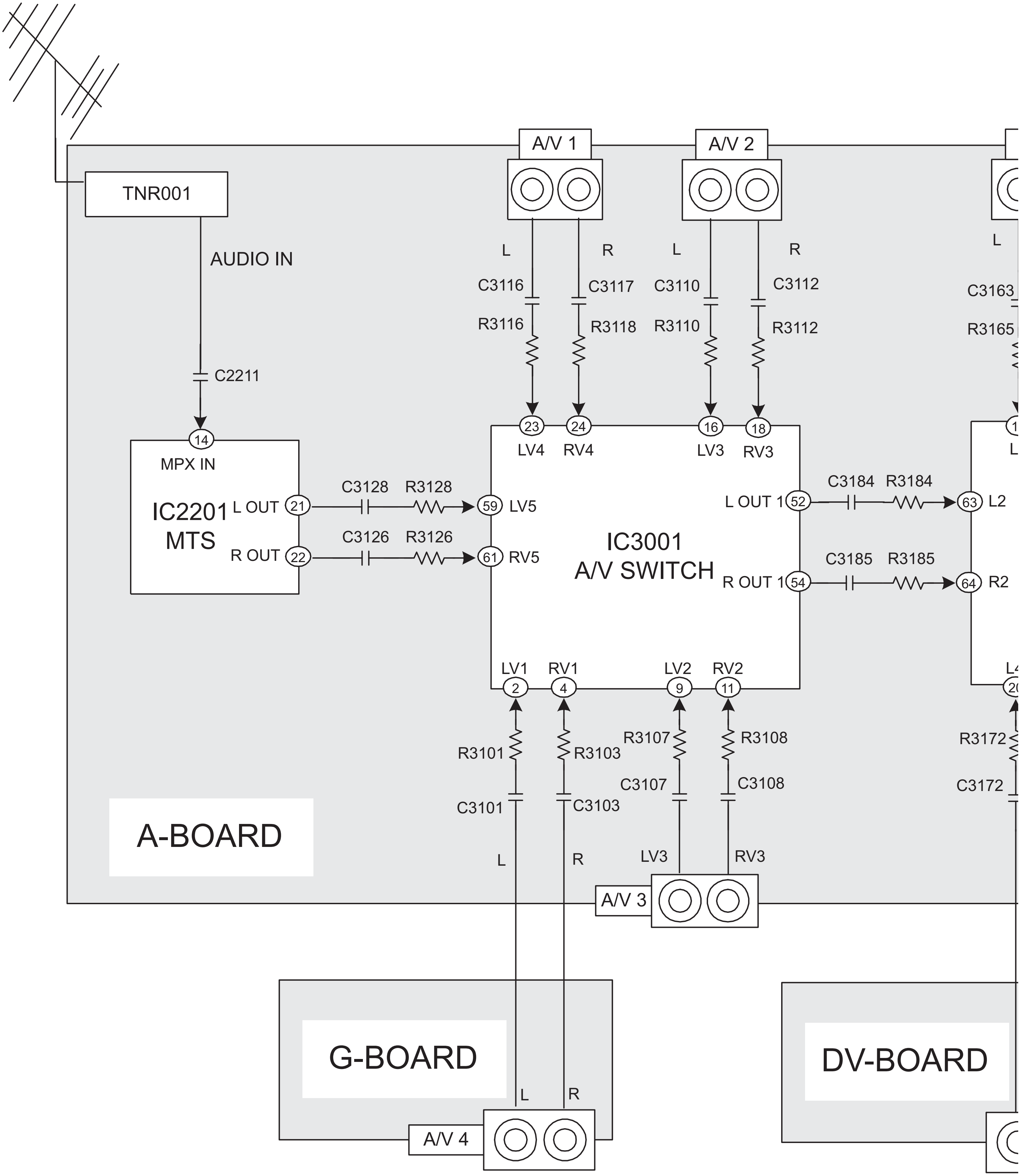
Ref. No.	Part No.	Part Name & Description	Remarks
R2371	ERJ6GEYJ223V	RES M 22K-J-1/10W	
R2373	ERJ6GEYJ153V	RES M 15K-J-1/10W	
R2385	ERDS2TJ102T	RES C 1K-J-1/4W	
R2386	ERDS2TJ102T	RES C 1K-J-1/4W	
R2451	ERDS2TJ681T	RES C 680-J-1/4W	
R2452	ERJ6GEYJ681V	RES M 680-J-1/10W	
R2456	ERJ6GEYJ471V	RES M 470-J-1/10W	
R2457	ERJ6GEYJ471V	RES M 470-J-1/10W	
R2460	ERDS2TJ101T	RES C 100-J-1/4W	
R2461	ERDS2TJ101T	RES C 100-J-1/4W	
R3001	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3002	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3005	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3007	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3011	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3014	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3015	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3016	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3017	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3020	ERJ6GEYJ103V	RES M 10K-J-1/10W	
R3021	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3022	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3023	ERJ6ENF1500V	RES M 150-F-1/10W	
R3024	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3025	ERJ6GEYJ471V	RES M 470-J-1/10W	
R3026	ERJ6GEYJ184V	RES M 180K-J-1/10W	
R3027	ERJ6GEYJ681V	RES M 680-J-1/10W	
R3028	ERJ6GEYJ681V	RES M 680-J-1/10W	
R3029	ERJ6GEYJ681V	RES M 680-J-1/10W	
R3030	ERJ6ENF68R0V	RES M 68-F-1/10W	
R3031	ERJ6ENF1500V	RES M 150-F-1/10W / CT-32HL43G/UG, CT-32HXC43G, / CT-36HL43G /UG	
R3031	ERJ6ENF68R0V	RES M 150-F-1/10W / CT-32HXC43UG	
R3032	ERJ6ENF1500V	RES M 150-F-1/10W / CT-32HL43G/UG, CT-32HXC43G, / CT-36HL43G /UG	
R3032	ERJ6ENF68R0V	RES M 150-F-1/10W / CT-32HXC43UG	
R3082	ERJ6ENF2001V	RES M 2K-F-1/10W	
R3083	ERJ6ENF2701V	RES M 2.7K-F-1/10W	
R3084	ERJ6ENF2001V	RES M 2K-F-1/10W	
R3085	ERJ6ENF2701V	RES M 2.7K-F-1/10W	
R3086	ERJ6GEYJ220V	RES M 22-J-1/10W / CT-32HL43G/UG, CT-36HL43G/UG	
R3089	ERJ6GEYJ220V	RES M 22-J-1/10W / CT-32HL43G/UG, CT-36HL43G/UG	
R3093	ERJ6GEYJ220V	RES M 22-J-1/10W / CT-32HL43G/UG, CT-36HL43G/UG	
R3100	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3101	ERDS2TJ221T	RES C 220-J-1/4W	
R3102	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3103	ERDS2TJ221T	RES C 220-J-1/4W	
R3104	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3105	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3106	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3107	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3108	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3109	ERDS2TJ221T	RES C 220-J-1/4W	
R3110	ERJ6GEYJ221V	RES M 220-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R3111	ERDS2TJ221T	RES C 220-J-1/4W	
R3112	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3113	ERDS2TJ221T	RES C 220-J-1/4W	
R3114	ERDS2TJ221T	RES C 220-J-1/4W	
R3115	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3116	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3117	ERDS2TJ221T	RES C 220-J-1/4W	
R3118	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3119	ERDS2TJ221T	RES C 220-J-1/4W	
R3120	ERDS2TJ221T	RES C 220-J-1/4W	
R3121	ERJ6GEYJ820V	RES M 82-J-1/10W	
R3122	ERJ6GEYJ820V	RES M 82-J-1/10W	
R3123	ERJ6GEYJ820V	RES M 82-J-1/10W	
R3124	ERJ6GEYJ820V	RES M 82-J-1/10W	
R3125	ERJ6GEYJ820V	RES M 82-J-1/10W	
R3126	ERDS2TJ221T	RES C 220-J-1/4W	
R3127	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3128	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3129	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3130	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3131	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3133	ERJ6ENF1500V	RES M 150-F-1/10W	
R3134	ERJ6ENF1500V	RES M 150-F-1/10W	
R3135	ERJ6ENF1500V	RES M 150-F-1/10W	
R3136	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3137	ERJ6ENF75R0V	RES M 75.0-F-1/10W	
R3140	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R3143	ERJ6GEYJ472V	RES M 4.7K-J-1/10W	
R3152	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R3154	ERJ6GEYJ224V	RES M 220K-J-1/10W	
R3157	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3158	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3160	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3161	ERJ6GEYJ220V	RES M 22-J-1/10W	
R3162	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3163	ERDS2TJ102T	RES C 1K-J-1/4W	
R3164	ERDS2TJ102T	RES C 1K-J-1/4W	
R3165	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3166	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3167	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3168	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3170	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3172	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3173	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3177	ERDS2TJ331T	RES C 330-J-1/4W	
R3178	ERDS2TJ331T	RES C 330-J-1/4W	
R3182	ERJ6ENF1801V	RES M 1.8K-F-1/10W	
R3183	ERJ6ENF2401V	RES M 2.4K-F-1/10W	
R3184	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3185	ERJ6GEYJ102V	RES M 1K-J-1/10W	
R3186	ERJ6ENF1801V	RES M 1.8K-F-1/10W	
R3187	ERJ6ENF2401V	RES M 2.4K-F-1/10W	
R3188	ERJ6GEYJ221V	RES M 220-J-1/10W	
R3189	ERJ6GEYJ102V	RES M 1K-J-1/10W	

Ref. No.	Part No.	Part Name & Description	Remarks
R3190	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R3191	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R3192	**ERJ6GEYJ102V**	**RES M 1K-J-1/10W**	
R3193	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3194	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3195	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3196	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3197	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3198	**ERJ6ENF75R0V**	**RES M 75.0-F-1/10W**	
R3801	**ERJ6ENF1000V**	**RES M 100-F-1/10W**	
R3802	**ERJ6ENF1000V**	**RES M 100-F-1/10W**	
R3803	**ERJ6ENF1000V**	**RES M 100-F-1/10W**	
R3804	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R3805	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R3806	**ERDS2TJ101T**	**RES C 100-J-1/4W**	
R3807	**ERC12GK821D**	**RES C 820-K-1/2W**	
R3808	**ERC12GK821D**	**RES C 820-K-1/2W**	
R3809	**ERC12GK821D**	**RES C 820-K-1/2W**	
R3810	**ERDS2TJ102T**	**RES C 1K-J-1/4W**	
R3811	**ERDS2TJ102T**	**RES C 1K-J-1/4W**	
R3812	**ERDS2TJ102T**	**RES C 1K-J-1/4W**	
R4828	**ERJ6GEYJ562V**	**RES M 5.6K-J-1/10W**	
R4865	**ER0S2TKF1502**	**RES M 15.0K-F-1/4**	
R4866	**ERJ6ENF6801V**	**RES M 6.8K-F-1/10W**	
R4868	**ERJ6GEYJ473V**	**RES M 47K-J-1/10W**	
R4869	**ERJ6GEYJ333V**	**RES M 33K-J-1/10W**	
R4870	**ERJ6GEYJ683V**	**RES M 68K-J-1/10W**	
R4871	**ERJ6GEYJ100V**	**RES M 10-J-1/10W**	
R4874	**ERDS2TJ102T**	**RES C 1K-J-1/4W**	
R4875	**ERJ6GEYJ473V**	**RES M 47K-J-1/10W**	
R4876	**ERG1SJ470P**	**RES M 47-J-1W**	
R4930	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R4931	**ERJ6GEYJ682V**	**RES M 6.8K-J-1/10W**	
R4932	**ERJ6GEYJ472V**	**RES M 4.7K-J-1/10W**	
R4933	**ERJ6GEYJ472V**	**RES M 4.7K-J-1/10W**	
R4934	**ERJ6GEYJ153V**	**RES M 15K-J-1/10W**	
R4935	**ERJ6GEYJ153V**	**RES M 15K-J-1/10W**	
R4936	**ERJ6GEYJ103V**	**RES M 10K-J-1/10W**	
R4938	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R4939	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R4942	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R4943	**ERJ6GEYJ101V**	**RES M 100-J-1/10W**	
R4946	**ERJ6ENF5602V**	**RES M 56K-F-1/10W**	
R4947	**ERJ6ENF2001V**	**RES M 2K-F-1/10W**	
R4948	**ERDS2TJ822T**	**RES C 8.2K-J-1/4W**	
R4949	**ERDS2TJ102T**	**RES C 1K-J-1/4W**	
R4950	**ERDS1FJ391T**	**RES C 390-J-1/2W**	
R4951	**ERX12SJR47P**	**RES M .47-J-1/2W**	
R4952	**ERX12SJR68P**	**RES M .68-J-2W**	
R4953	**ERDS1FJ391T**	**RES C 390-J-1/2W**	
R5013	**ERDS1FJ1R0T**	**RES C 1.0-J-1/2W**	
R519A	**ERQ1CZKPR22S**	**RES F .22-K-1W**	
SWITCHES			
S001	**EVQPBD05R**	**SWITCH / CT-32HL43G/UG, CT-36HL43G/UG**	

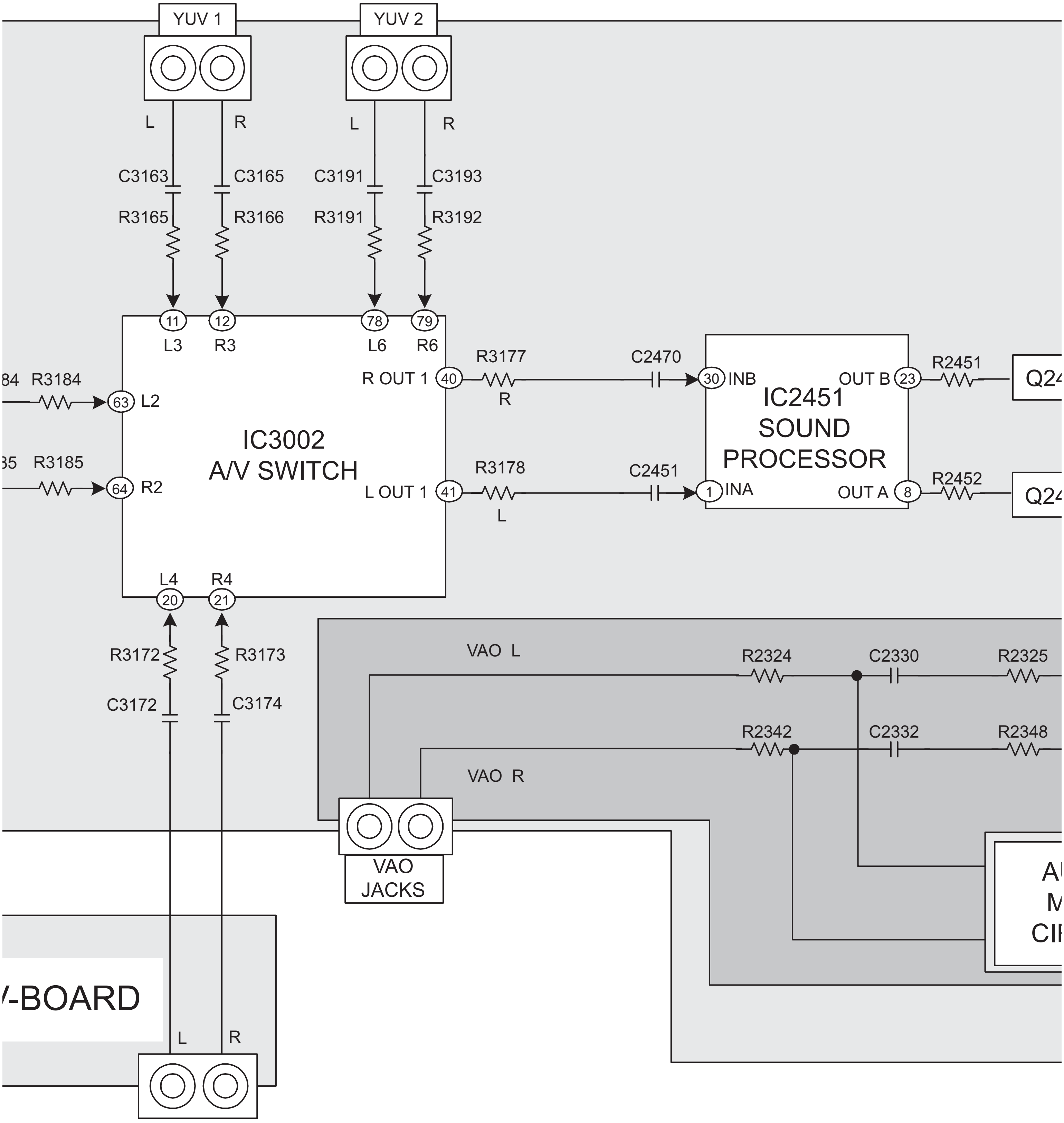
Ref. No.	Part No.	Part Name & Description	Remarks
S001	EVQPF106K	SWITCH / CT-32HXC43G/UG	
S002	EVQPBD05R	SWITCH	
S003	EVQPBD05R	SWITCH	
S004	EVQPBD05R	SWITCH	
S005	EVQPBD05R	SWITCH	
S006	EVQPBD05R	SWITCH	
S007	EVQPBD05R	SWITCH	
		TRANSFORMERS	
T501	ETH19K204AZ	TRANSFORMER	
T551	TXFFT03GSER	ASSY FLYBACK	⚠
T801	ETS42AD4A5AD	TRANSFORMER	⚠
T802	ETP30KB921GG	TRANSFORMER	⚠
T1501	ETF18L106A	TRANSFORMER	⚠
T2301	G0BYYYY00016	TRANSFORMER	
T3001	G0B250D00001	TRANSFORMER	
T3002	G0B250D00001	TRANSFORMER	
T3003	G0BYYYY00016	TRANSFORMER	
T3004	G0BYYYY00016	TRANSFORMER	
T3005	TF0402B04P03	TRANSFORMER	
T3006	TF0402B04P03	TRANSFORMER	
T3023	G0BYYYY00016	TRANSFORMER	
T3024	TF0402B04P03	TRANSFORMER	
T3025	TF0402B04P03	TRANSFORMER	
T3027	G0BYYYY00016	TRANSFORMER	
T3801	G0B250D00001	TRANSFORMER	
T3802	G0B250D00001	TRANSFORMER	
T4801	TF0402B04P03	TRANSFORMER	
T5001	G0B250D00001	TRANSFORMER / CT-32HL43G/UG, CT-36HL43G/UG	
		OTHERS	
TNR001	ENG36619G	MAIN TUNER	⚠
TNR002	ENG36620G	SUB TUNER	⚠
1	M80LSW095X	CRT 32 INCH PF / CT-32HL43G/UG, CT-32HXC43G/UG	⚠
	A90LSW295X	CRT 36 INCH PF / CT-36HL43G/UG	⚠
M001	K3B10CA00041	CRT SOCKET	⚠
2	KDY45HE59F	DEFLECTION YOKE / CT-36HL43G/UG	⚠
	TLY2AA024	DEFLECTION YOKE / CT-32HL43G/UG, CT-32HXC43G/UG	⚠
M002	TXFYA010EGW	DAG GROUND	
3	TSP2AA016-1	DEGAUSSING COIL / CT-32HXC43G/UG	⚠
	TSP2AA025	DEGAUSSING COIL / CT-36HL43G/UG	⚠
	TSP2AA027	DEGAUSSING COIL / CT-32HL43G/UG	⚠
4	EABG8509A2	SUB-WOOFER BOX / CT-32HL43G/UG, CT-36HL43G/UG	
5	EASG12D555B2	SPEAKER / CT-32HXC43G/UG	
	EASG18S501B2	SPEAKER / CT-32HL43G/UG, CT-36HL43G/UG	
6	ENPE2A001	SPLITTER 2RF (U-LIM)	
7	TBX2AA0191	BUTTON FUNCTION KEY / CT-32HL43G/UG, CT-36HL43G/UG	
8	TKP2AA0722S	DOOR / CT-32HL43G/UG, CT-36HL43G/UG	
	TKP2AA0405S	DOOR / CT-32HXC43G/UG	
9	TEK6935	DOOR CATCH / CT-32HL43G/UG, CT-36HL43G/UG	
	TEK6940	DOOR CATCH / CT-32HXC43G/UG	

Ref. No.	Part No.	Part Name & Description	Remarks
10	TKP2AA0391	LED PANEL / CT-32HXC43G/UG	
	TKP2AA0741	LED PANEL / CT-32HL43G/UG, CT-36HL43G/UG	
11	TKX2AA0181	IR GUIDE / CT-32HL43G/UG, CT-36HL43G/UG	
M003	TMMJ057	RUBBER WASHER / CT-32HXC43G/UG	
M004	TMM2A30702	WEDGE YOKE / CT-32HL43G/UG, CT-36HL43G/UG	
12	TMW2A97121	STRAIN RELIEF: AC LINE CORD	
13	TMZ2AC50011	BRACKET SUPPORT CRT / CT-32HL43G/UG, CT-36HL43G/UG	
M005	TSM2AA001	MAGNET PERMALLOY	
M006	TSN63115-2	MAGNET PURITY / CT-32HL43G/UG, CT-36HL43G/UG	
	TSN63115-4	MAGNET PURITY / CT-32HXC43G/UG	
14	TSP2AF007	COIL ROTATION / CT-32HL43G/UG, CT-36HL43G/UG / CT-32HXC43G /UG	
15	TSP2AF008	COIL GEOMAGNETIC / CT-36HL43G/UG	
	TSP2AF009	COIL GEOMAGNETIC / CT-32HL43G/UG, CT-32HXC43G/UG	
M007	TSX2AA0351	LINE CORD AC	⚠
16	TTP2AA0733S	FRONT PANEL / CT-32HL43G/UG, CT-36HL43G/UG	
	TXFKP08GSER	FRONT PANELS (LEFT AND RIGHT) / CT-32HXC43G/UG	
17	TXFKU04GSER	ASSY CABINET BACK / CT-36HL43G/UG	
	TXFKU06GSER	ASSY CABINET BACK / CT-32HL43G/UG	
	TXFKU08GSER	ASSY CABINET BACK / CT-32HXC43G/UG	
18	TXFKY06GSER	ASSY CABINET FRONT / (INCLUDES PANASONIC BATCH, FRONT PANEL, LED PANEL AND IR GUIDE) CT-36HL43G/UG	
	TXFKY07GSER	ASSY CABINET FRONT / (INCLUDES PANASONIC BATCH, FRONT PANEL, LED PANEL AND IR GUIDE) CT-32HL43G/UG	
	TXFKY08GSER	ASSY CABINET FRONT / (INCLUDES PANASONIC BATCH, LED PANEL AND OVERLAY) CT-32HXC43G/UG	
M008	TXFSPB01BSER	ASSY SPEAKER BRACKETS / CT-32HXC43G/UG	
JK3001	TJB2AA0251	TERMINAL REAR A/V 12P	
JK3002	TJB2AA0241	TERMINAL REAR A/V 10P	
JK3151	TJBA187	JACK A/V OUTPUT / CT-32HXC43G/UG	
JK3151	TJB2AA0371	TERMINAL FRONT A/V / CT-32HL43G/UG, CT-36HL43G/UG	
JK5001	DV2R024NKB	EDI CONNECTOR / CT-36HL43G/UG, CT-32HL43G/UG	
JK5002	TJB2AA0411	TERMINAL VIDEO / CT-36HL43G/UG, CT-32HL43G/UG	
OTHERS			
M009	TQB2AA0467	OWNERS MANUAL	
M010	EUR7603Z90	REMOTE CONTROL / CT-32HL43G/UG, CT-36HL43G/UG	
M011	UR76EC0303D	BATTERY COVER, REMOTE / CT-32HL43G/UG, CT-36HL43G/UG	
M012	EUR7613Z40	REMOTE CONTROL / CT-32HXC43G/UG	
M013	UR76EC0303A	BATTERY COVER, REMOTE / CT-32HXC43G/UG	

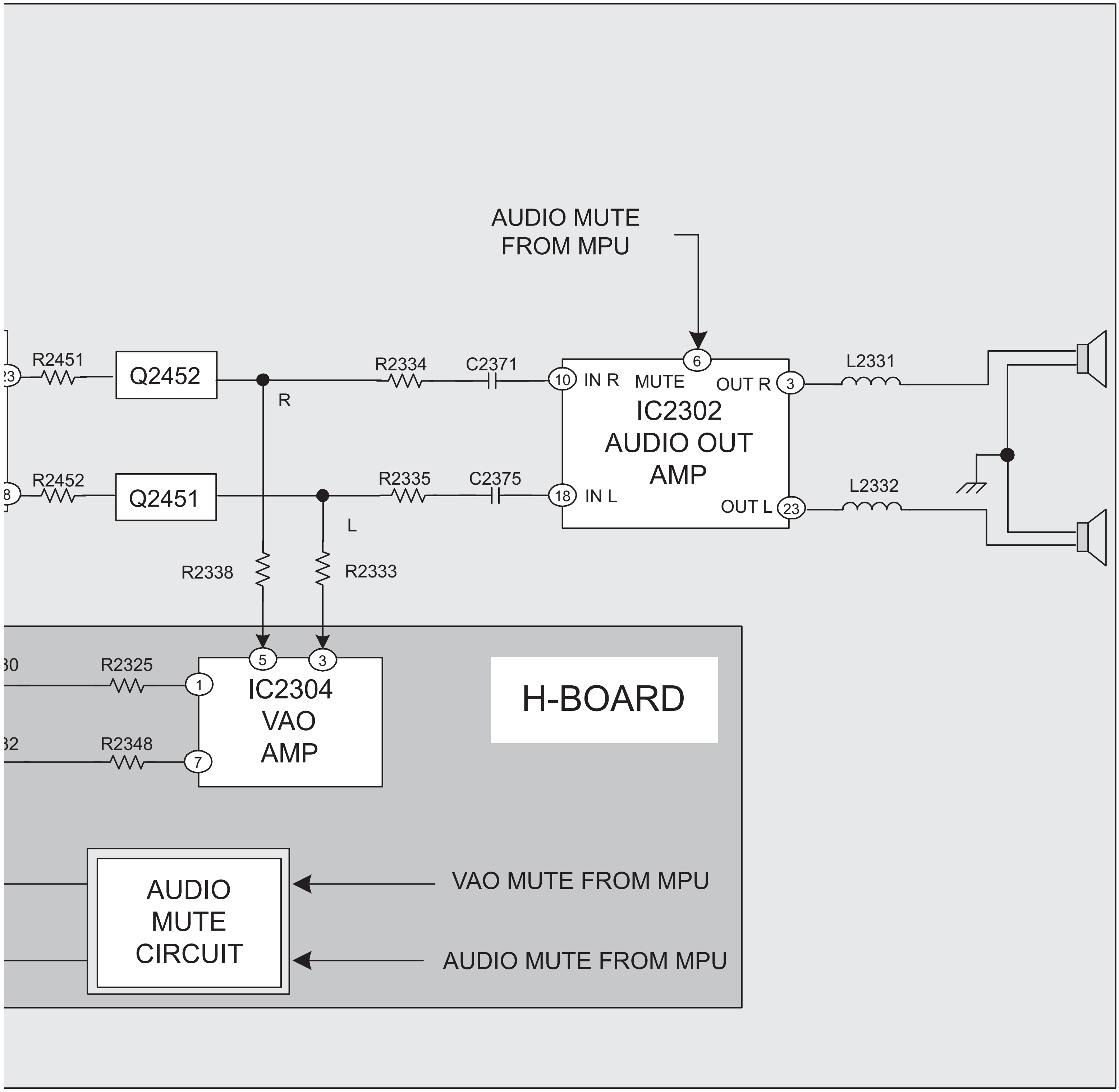


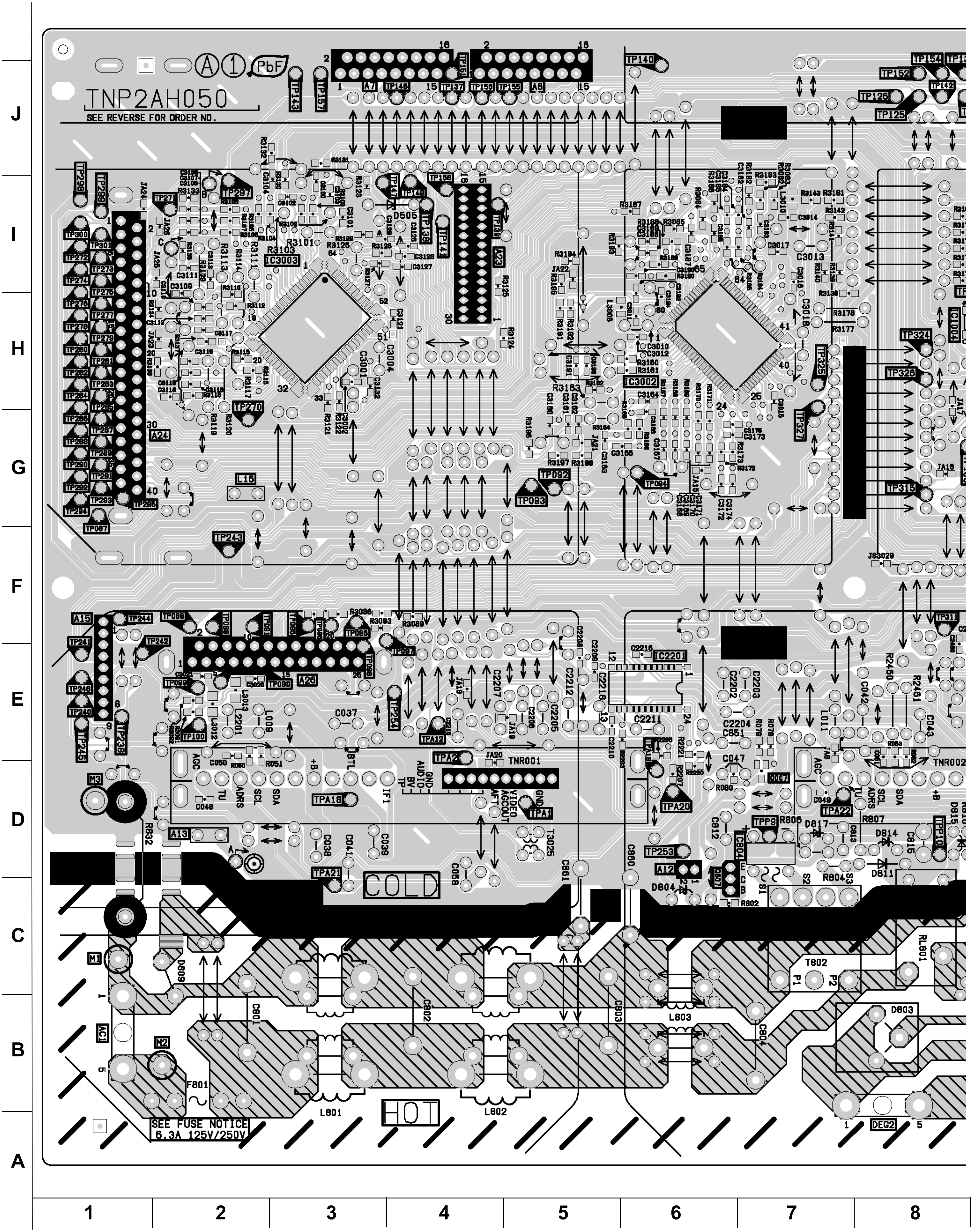
A/V 1
A/V 2
TNR001
AUDIO IN
L
R
L
R
L
C3116
C3117
C3110
C3112
C3163
R3116
R3118
R3110
R3112
R3165
C2211
14
MPX IN
IC2201
MTS
L OUT
21
R OUT
22
C3128
R3128
C3126
R3126
23
24
16
18
LV4
RV4
LV3
RV3
59
LV5
61
RV5
IC3001
A/V SWITCH
L OUT 1
52
R OUT 1
54
C3184
R3184
C3185
R3185
63
L2
64
R2
LV1
RV1
LV2
RV2
2
4
9
11
R3101
R3103
R3107
R3108
R3172
C3101
C3103
C3107
C3108
C3172
L
R
LV3
RV3
A/V 3
A-BOARD
G-BOARD
DV-BOARD
L
R
A/V 4

AUDIO BLOCK DIAGRAM 1/3 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


YUV 1
YUV 2
L
R
L
R
C3163
C3165
C3191
C3193
R3165
R3166
R3191
R3192
11
12
78
79
L3
R3
L6
R6
84
R3184
63
L2
35
R3185
64
R2
IC3002
A/V SWITCH
R OUT 1
40
L OUT 1
41
R3177
R
R3178
L
C2470
C2451
30
INB
1
INA
IC2451
SOUND
PROCESSOR
OUT B
23
OUT A
8
R2451
R2452
Q24
Q24
L4
R4
20
21
R3172
R3173
C3172
C3174
VAO L
VAO R
R2324
C2330
R2325
R2342
C2332
R2348
VAO
JACKS
AU
M
CIR
/-BOARD
L
R

AUDIO BLOCK DIAGRAM 2/3 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


AUDIO MUTE
FROM MPU
23
R2451
Q2452
R
R2334
C2371
10
IN R
6
MUTE
OUT R
3
L2331
IC2302
AUDIO OUT
AMP
8
R2452
Q2451
L
R2335
C2375
18
IN L
OUT L
23
L2332
R2338
R2333
30
R2325
5
3
1
IC2304
VAO
AMP
32
R2348
7
H-BOARD
AUDIO
MUTE
CIRCUIT
VAO MUTE FROM MPU
AUDIO MUTE FROM MPU


TNP2AH050
SEE REVERSE FOR ORDER NO.
PbF
IC3003
IC3002
IC2201
TNR001
TNR002
A7
A6
A23
A24
A26
A15
A13
A12
L16
M1
M2
M3
AC1
F801
SEE FUSE NOTICE
6.3A 125V/250V
COLD
HOT
L801
L802
L803
C801
C802
C803
C804
T802
P1
P2
RL801
D803
DEG2
D804
D811
D814
D815
D817
IC804
S1
S2
S3
R804
R802
R806
R807
R832
D809
C861
C860
AGC
TU
ADRS
SCL
SDA
+B
IF1
GND
AUDIO
BY
TP
VIDEO
AGCOUT
AFT
T3025
TP140
TP143
TP157
TP298
TP299
TP297
TP270
TP243
TP092
TP093
TP084
TP253
TPA1
TPA2
TPA12
TPA18
TPA20
TPA21
TPA22
TPP9
TP324
TP325
TP326
TP327
TP315
TP152
TP154
TP126
TP125
TP142
1
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G
H
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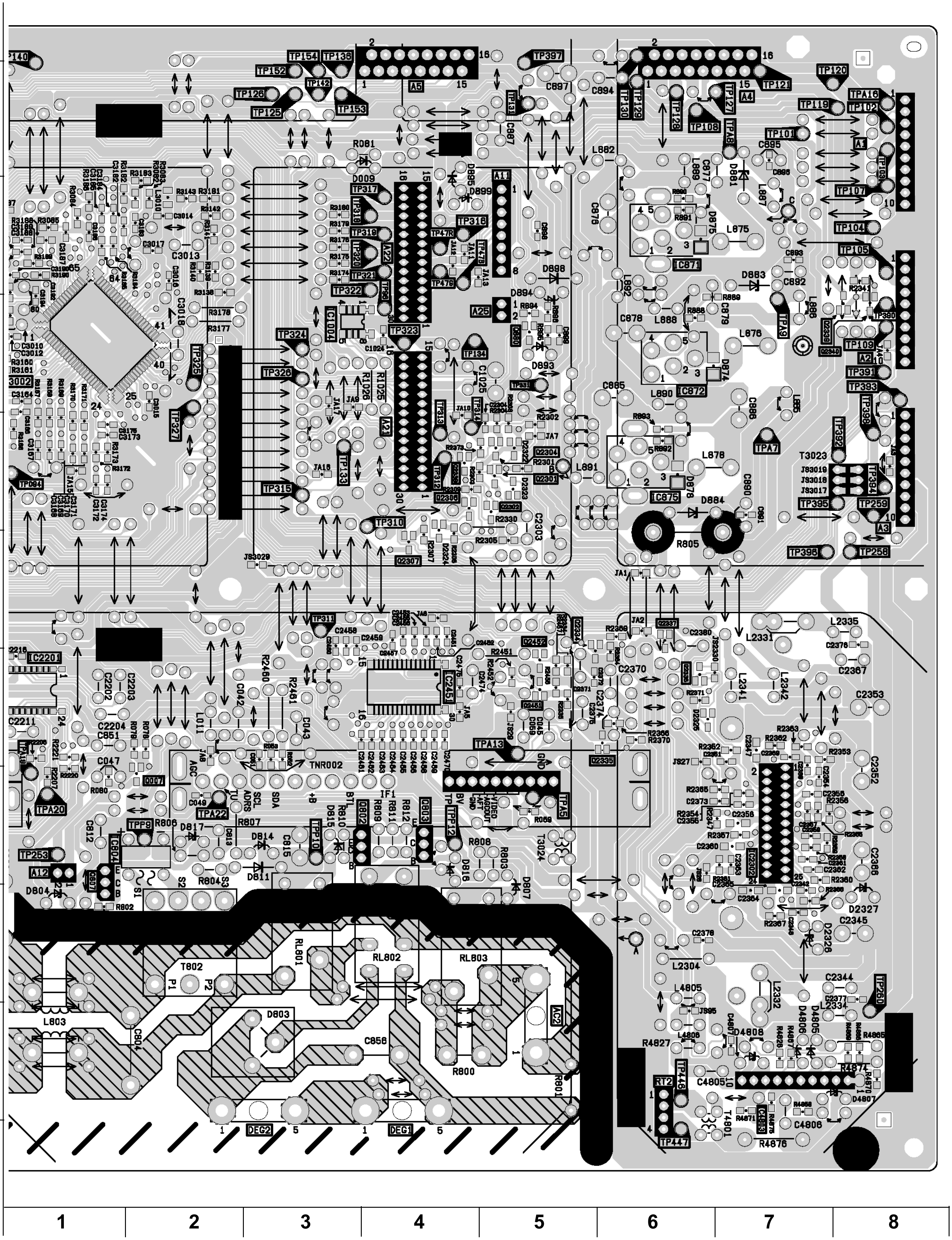
J

A-BOARD 1/2 TNP2AH050 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
I
H
G
F
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A
1
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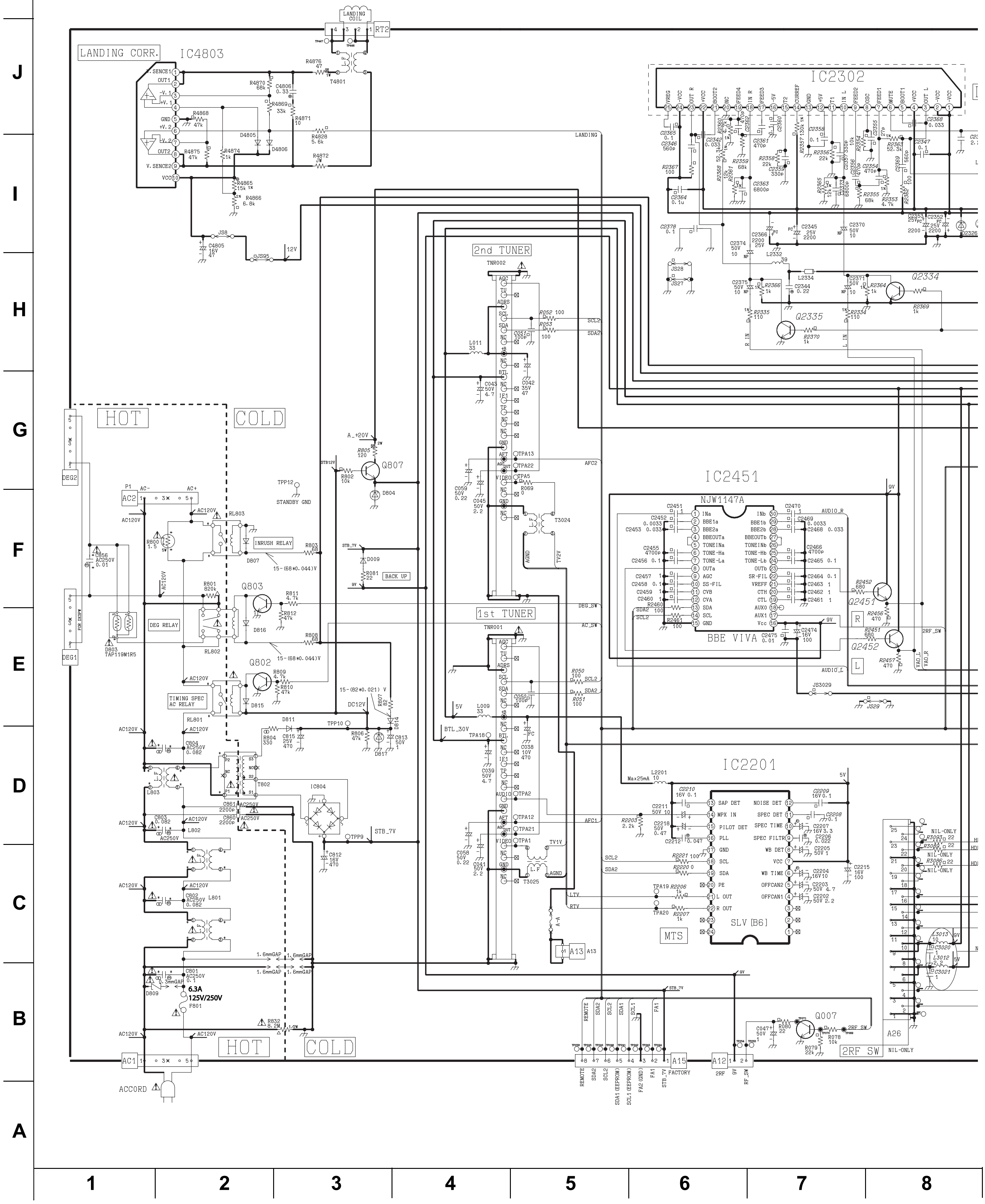
TP140
TP154
TP136
TP152
TP142
TP126
TP125
TP153
A5
TP397
C897
C894
TP131
C887
TP130
TP129
TP128
TP127
TP121
A4
TP120
TPA16
TP119
TP102
TP108
TPA8
TP101
A1
C895
TP103
R081
D009
D885
D899
TP317
TP318
TP319
TP320
TP321
TP322
A22
TP316
TP47R
TP47B
A11
L882
L889
C877
D881
L887
TP107
C876
R890
R891
D875
L875
IC871
TP104
TP105
D898
D894
A25
D883
C892
L886
L892
C878
L888
R888
R889
C879
TPA9
L876
D874
IC872
TP390
TP109
A2
TP391
TP393
IC1004
TP323
TP324
TP325
TP326
TP327
TP134
C1025
R1025
R1026
A21
TP331
D893
C865
L890
C886
L885
TP313
TP314
R2302
Q2304
Q2301
TP133
TP312
Q2306
Q2303
R2330
C2303
TP310
R2305
Q2307
TP315
TP384
TP392
TP398
T3023
JS3019
JS3018
JS3017
TPA7
L878
R892
R893
C890
D878
IC875
D884
C891
L891
R805
TP396
TP258
TP395
TP259
A3
TP094
C3013
C3017
C3014
C3018
R3177
R3178
R3138
R3181
R3183
IC3002
JS3029
TP311
C2458
C2459
C2457
R2451
Q2452
Q2451
C2474
IC2451
R2460
R2461
C042
C043
L011
TNR002
TPA13
Q2335
Q2332
R2386
JA2
Q2337
C2380
L2331
L2335
C2376
C2367
C2370
L2341
L2342
C2353
R2363
R2362
R2353
C2352
IC2302
C2366
D2327
C2345
D2326
C2344
C2377
L2334
TP260
C2378
L2304
L2332
L4805
JS95
L4806
C4807
D4808
D4806
D4805
R4827
R4874
R4870
C4805
D4807
C4806
R4875
T4801
TP448
RT2
TP447
IC2201
C2202
C2203
C2211
C2204
C851
C047
Q007
TPA20
TPA22
TPP9
TPA19
R806
D817
D814
C815
R807
D811
D815
TPP10
Q802
Q803
TPP12
TPA5
R808
R803
D816
D807
T3024
R809
R810
R811
R812
IF1
TP253
A12
D804
IC804
Q807
R802
R804
S1
S2
S3
T802
P1
P2
RL801
RL802
RL803
L803
C804
D803
C856
R800
R801
AC2
DEG2
DEG1
ADRS
SCL
SDA
+B
BTL
TU
AGC
GND
VIDEO
AUDOUT
AFT

A-BOARD 2/2 TNP2AH050 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


LANDING CORR.
LANDING COIL
RT2
IC4803
T4801
LANDING
IC2302
2nd TUNER
TNR002
1st TUNER
TNR001
HOT
COLD
DEG2
DEG1
DEG RELAY
INRUSH RELAY
TIMING SPEC AC RELAY
RL803
RL802
RL801
Q807
Q803
Q802
D803 TAP119M1R5
T802
IC804
BACK UP
STANDBY GND
TPP12
IC2451
NJW1147A
BBE VIVA
Q2451
Q2452
Q2334
Q2335
IC2201
SLV [B6]
MTS
A13
A15
FACTORY
A12
A26
2RF SW
NIL-ONLY
Q007
AC1
AC2
ACCORD
F801
6.3A
125V/250V
T3024
T3025
AUDIO_R
AUDIO_L
DEG_SW
AC_SW
AFC1
AFC2
SCL2
SDA2
STB_7V
9V
5V
12V
BTL_30V
A_+20V
REMOTE
SDA1 (EEPROM)
SCL1 (EEPROM)
FA2 (GND)
FA1
RF_SW
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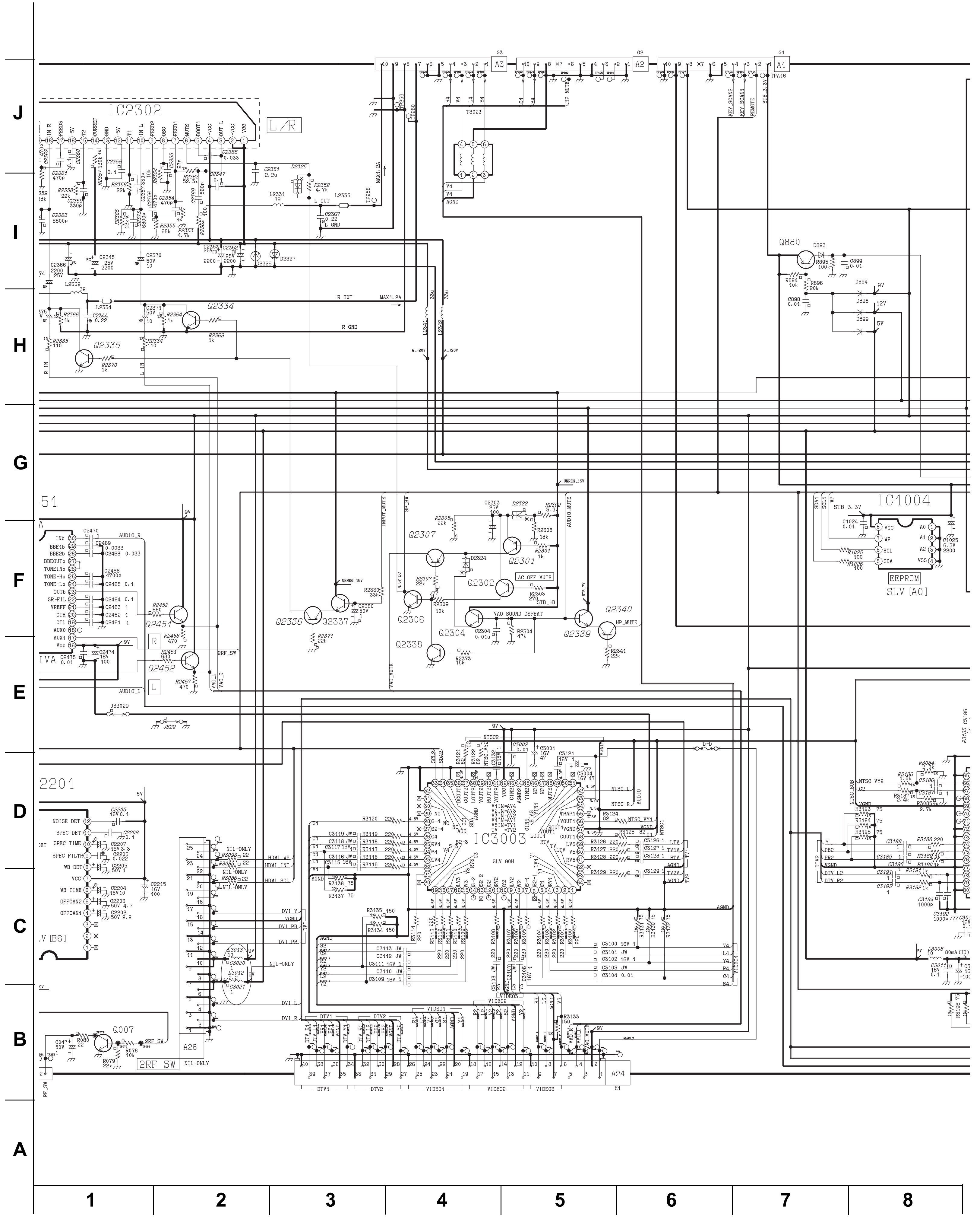
A-BOARD 1/3 TNP2AH050/AB CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



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L/R
IC3003
SLV 90H
IC1004
EEPROM
SLV [A0]
T3023
Q2334
Q2335
Q2301
Q2302
Q2304
Q2306
Q2307
Q2336
Q2337
Q2338
Q2339
Q2340
Q2451
Q2452
Q880
Q007
A3
A2
A1
A24
A26
2RF SW
NIL-ONLY
DVI
DTV1
DTV2
VIDEO1
VIDEO2
VIDEO3
VIDEO4
TV1
TV2
R OUT
R GND
L OUT
L GND
MAX1.2A
UNREG_15V
AUDIO_MUTE
INPUT_MUTE
SP_SW
HP_MUTE
VAO SOUND DEFEAT
AC OFF MUTE
STB_+B
STB_3.3V
KEY_SCAN1
KEY_SCAN2
REMOTE
J
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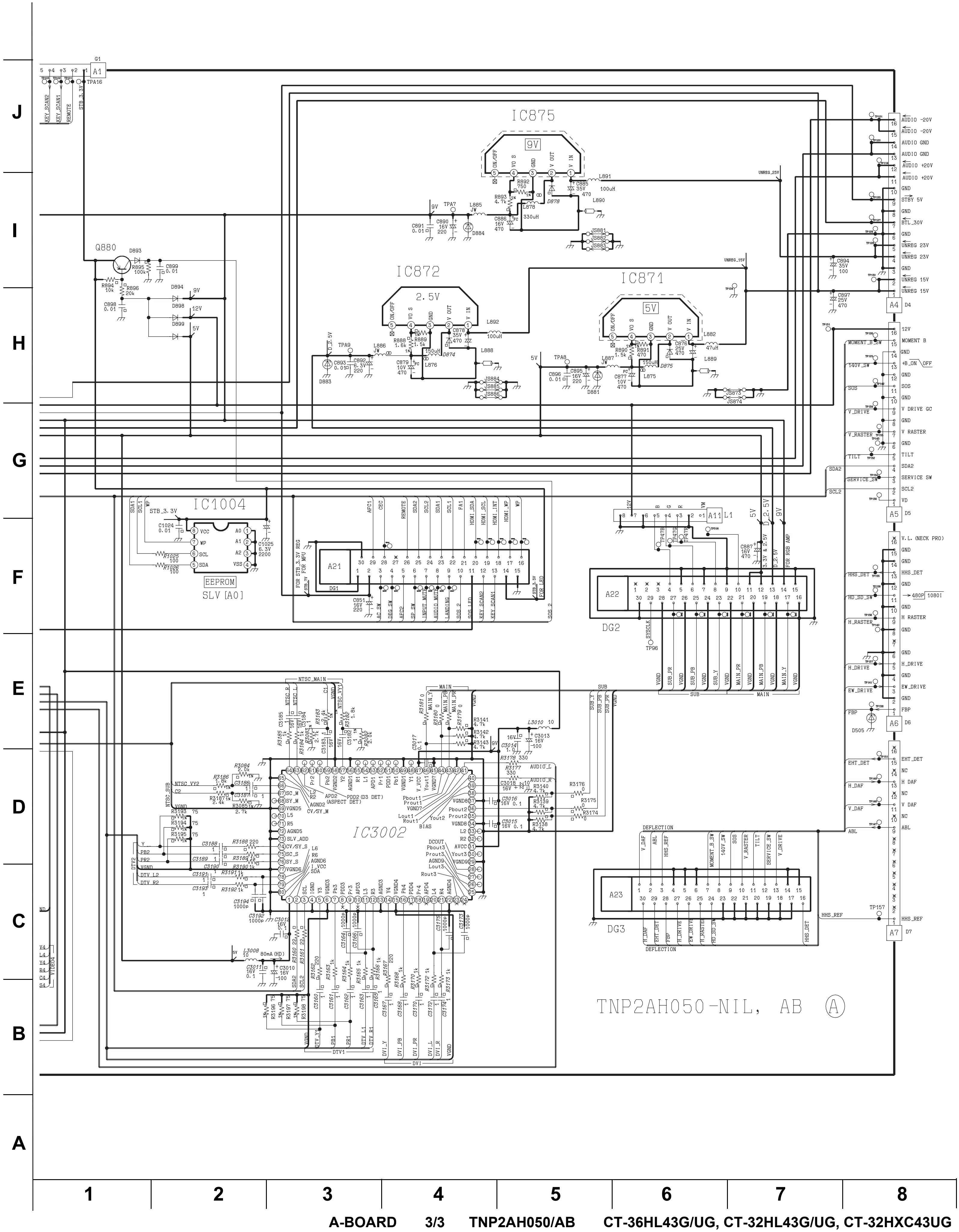
A-BOARD 2/3 TNP2AH050/AB CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
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7
8
G1
A1
TPA16
KEY_SCAN2
KEY_SCAN1
REMOTE
STB_3.3V
IC875
9V
ON/OFF
VO S
GND
V OUT
V IN
L891
100uH
UNREG_23V
R892
750
R893
4.7k
C885
35V
470
D878
L878
330uH
L890
TPA7
L885
JW
C891
0.01
C890
16V
220
C886
16V
470
D884
JS881
JS882
JS883
Q880
D893
R895
100k
C899
0.01
R894
10k
R896
20k
C898
0.01
D894
D898
D899
9V
12V
5V
IC872
2.5V
L892
100uH
R888
1.6k
R889
1.5k
C878
35V
470
D874
L876
150uH
L888
TPA9
L886
JW
C892
6.3V
220
C893
0.01
C879
10V
470
D883
JS884
JS885
JS886
IC871
5V
UNREG_15V
TPA8
L887
JW
C896
0.01
C895
16V
220
D881
R890
1.5k
R891
470
C876
25V
470
D875
L882
47uH
L889
C877
10V
470
L875
150uH
JS873
JS874
C894
35V
100
C897
25V
470
A4
D4
AUDIO -20V
AUDIO GND
AUDIO +20V
GND
STBY 5V
BTL_30V
UNREG 23V
UNREG 15V
12V
MOMENT B
MOMENT_B_SW
+B_ON
OFF
140V_SW
SOS
V DRIVE GC
V_DRIVE
V RASTER
V_RASTER
TILT
SDA2
SERVICE SW
SERVICE_SW
SCL2
VD
A5
D5
IC1004
STB_3.3V
C1024
0.01
VCC
WP
SCL
SDA
A0
A1
A2
VSS
C1025
6.3V
2200
R1025
100
R1026
100
EEPROM
SLV [A0]
AFC1
CEC
REMOTE
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SCL2
SDA1
SCL1
FA1
HDMI_SDA
HDMI_SCL
HDMI_INT
HDMI_WP
WP
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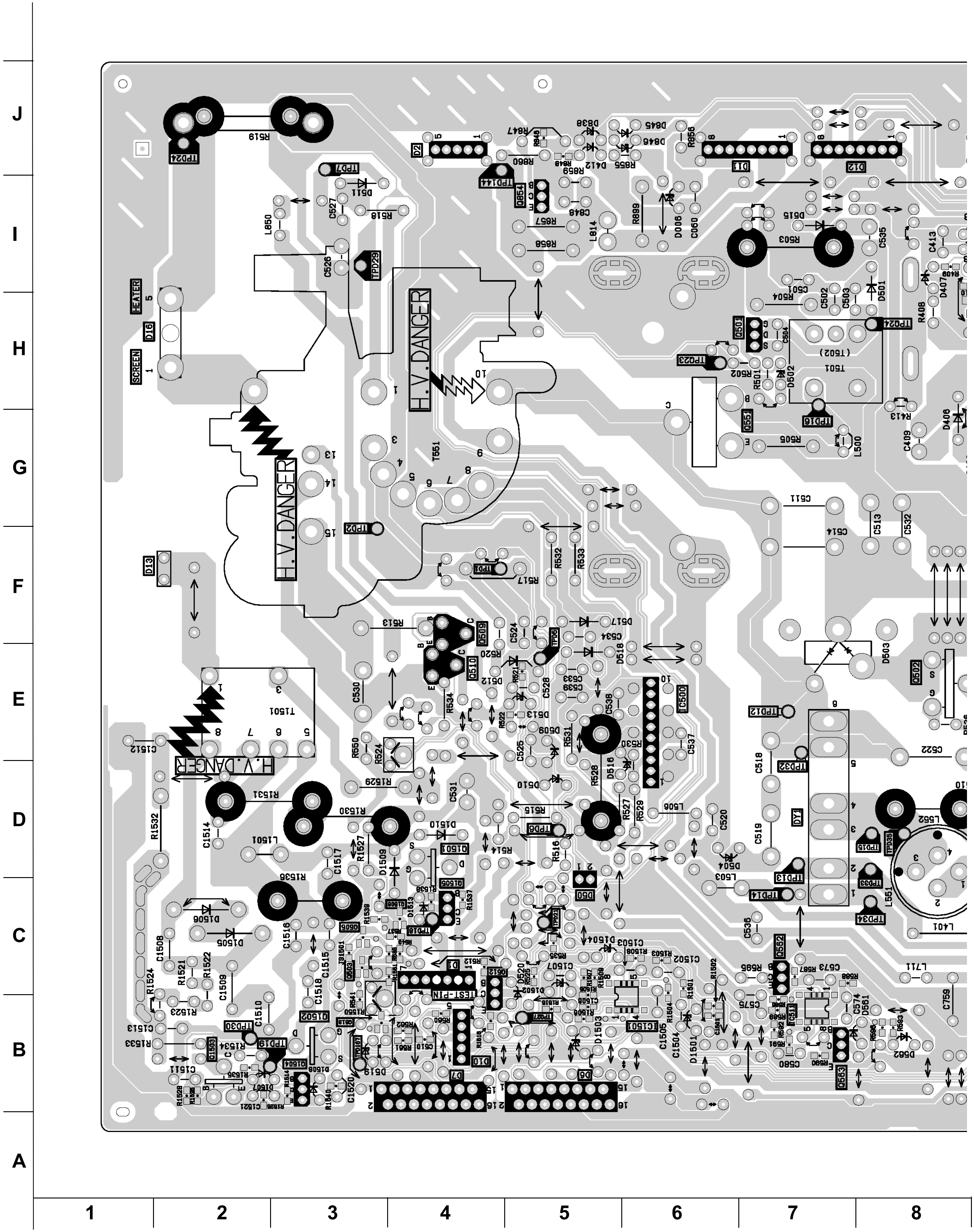
DG1
FOR STB_3.3V REG
FOR MPU
C851
16V
220
AC_SW
DEG_SW
AFC2
SP_SW
INPUT_MUTE
AUDIO_MUTE
LANDING
SOS_2
SOS_LED
KEY_SCAN2
KEY_SCAN1
FOR LED
STB_3.3V
A11
L1
12V
B
G
R
VM
5V
D_2.5V
9V
TP47B
TP47G
TP47R
TP916
C887
16V
470
3.3V & 2.5V
D_2.5V
FOR RGB AMP
A22
DG2
SYSCLK
TP96
VGND
SUB_PR
SUB_PB
SUB_Y
MAIN_PR
MAIN_PB
MAIN_Y
SUB
MAIN
V.L. (NECK PRO)
HHS_DET
HD_SD_SW
480P
1080I
H RASTER
H_RASTER
H_DRIVE
EW_DRIVE
FBP
D505
A6
D6
EHT_DET
NC
H DAF
H_DAF
V DAF
V_DAF
ABL
HHS_REF
TP157
A7
D7
IC3002
NTSC_MAIN
NTSC_VY2
NTSC_SUB
C2
VGND
R3084
2.0k
R3186
1.6k
C3186
C3187
R3187
2.4k
R3085
2.7k
R3193
R3194
R3195
75
Y
PB2
PR2
DTV2
DTV L2
DTV R2
R3188
220
C3188
C3189
C3190
C3191
C3192
C3193
R3189
R3190
R3191
R3192
1k
C3194
1000p
C3012
16V
0.1
L3008
10
80mA (HD)
C3011
16V
0.1
C3010
16V
100
R3160
R3161
22
SDA2
SCL2
R3196
R3197
R3198
75
DTV_Y1
PB1
PR1
DTV_L1
DTV_R1
DTV1
DVI_Y
DVI_PB
DVI_PR
DVI_L
DVI_R
DVI
R3162
220
R3163
R3164
R3165
R3166
R3167
R3168
R3170
R3172
R3173
1k
C3160
C3161
C3162
C3163
C3165
C3167
C3168
C3170
C3172
C3174
C3164
C3166
C3175
C3173
1000p
R3141
R3142
R3143
4.7k
L3010
10
C3013
16V
100
C3014
1.0
C3017
0.1
R3178
330
R3177
330
AUDIO_L
AUDIO_R
C3018
16V
R3140
4.7k
R3176
R3175
0
R3174
0
C3016
16V
0.1
R3139
4.7k
C3015
16V
0.1
R3138
4.7k
R3181
0
R3180
0
R3179
0
MAIN_Y
MAIN_PB
MAIN_PR
SUB_Y
SUB_PB
SUB_PR
Pr2
Pb2
Y2
APD2
(ASPECT DET)
PDD2 (D3 DET)
AGND2
CV/SY_M
SC_M
SY_M
VGND5
L5
R5
AGND5
SLV_ADD
CV/SY_S
SC_S
SY_S
VGND6
L6
R6
AGND6
I_VCC
SDA
SCL
IGND
Y3
VGND3
Pb3
PDD3
Pr3
APD3
L3
R3
AGND3
Y4
VGND4
Pb4
PDD4
Pr4
APD4
L4
R4
AGND4
Pbout1
Prout1
Lout1
Rout1
VGND7
Yout1
Yout2
BIAS
Pbout2
Prout2
VGND8
L2
R2
DCOUT
Pbout3
Prout3
AGND9
Lout3
Rout3
AVCC
Yout3
VGND9
V_VCC
VGND1
Y1
Pb1
PDD1
Pr1
APD1
R1
L1
AGND1
VGND2
DEFLECTION
V_DAF
ABL
HHS_REF
MOMENT_B_SW
140V_SW
SOS
V_RASTER
TILT
SERVICE_SW
V_DRIVE
A23
DG3
H_DAF
EHT_DET
FBP
H_DRIVE
EW_DRIVE
H_RASTER
HD_SD_SW
HHS_DET
Y4
L4
Y4
R4
C4
S4
VIDEO4
ND
TNP2AH050-NIL, AB Ⓐ

A-BOARD 3/3 TNP2AH050/AB CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
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G
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E
D
C
B
A
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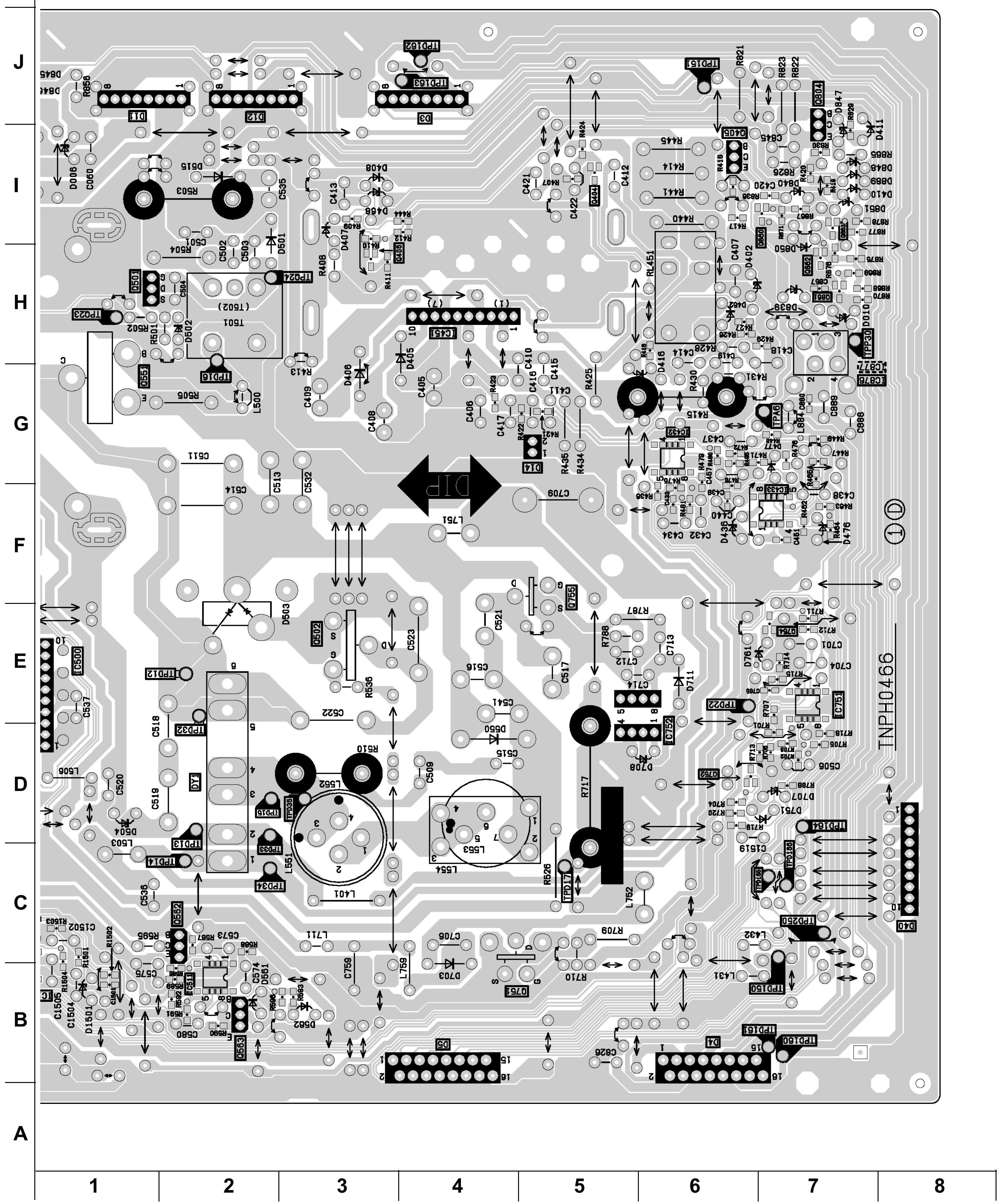
7
8
H.V. DANGER
H.V. DANGER
H.V. DANGER
HEATER
SCREEN
D16
D13
T551
T1501
TEST-PIN
IC500
IC1501
DY1
D1
D2
D6
D7
D10
D11
D12
D50

D-BOARD 1/2 TNPH0466 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
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C
B
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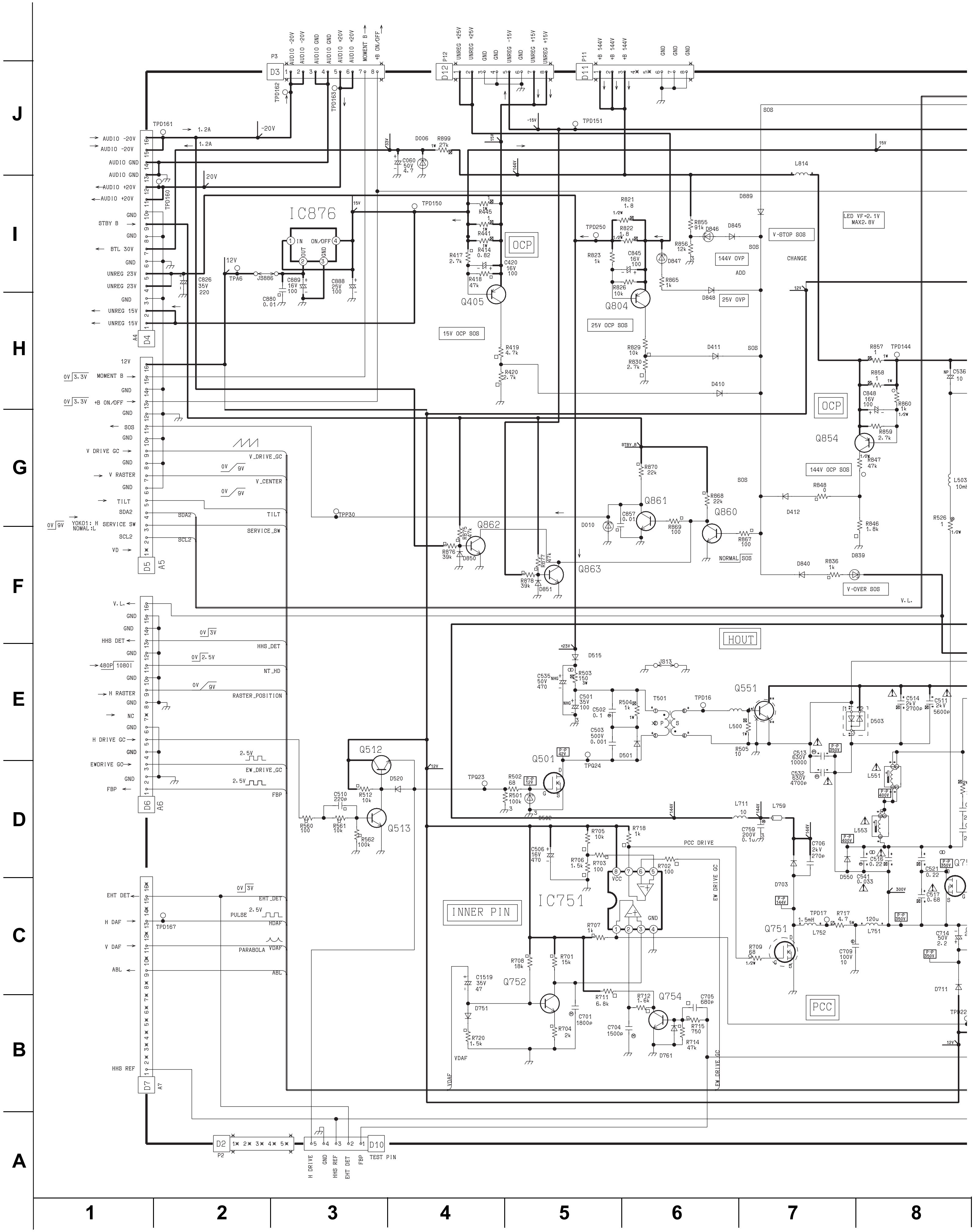
8
TNPH0466
DIP
1D
D11
D12
D3
D4
D5
D40
IC451
IC432
IC433
IC751
IC752
IC511
T501
(T502)
DY1
L551
L552
L553
L554
RL451
Q501
Q502
Q551
Q552
Q553
Q755
Q751
C709
C511
C514
C513
C532
C522
C516
C541
C517
C523
C521
R503
R510
R717
R526
TPD12
TPD13
TPD14
TPD15
TPD16
TPD17
TPD23
TPD24
TPD32
TPD33
TPD34
TPD35
TPD150
TPD151
TPD160
TPD161
TPD162
TPD163
TPD164
TPD250
TPA6
TPA30

D-BOARD 2/2 TNPH0466 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



J
I
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D
C
B
A
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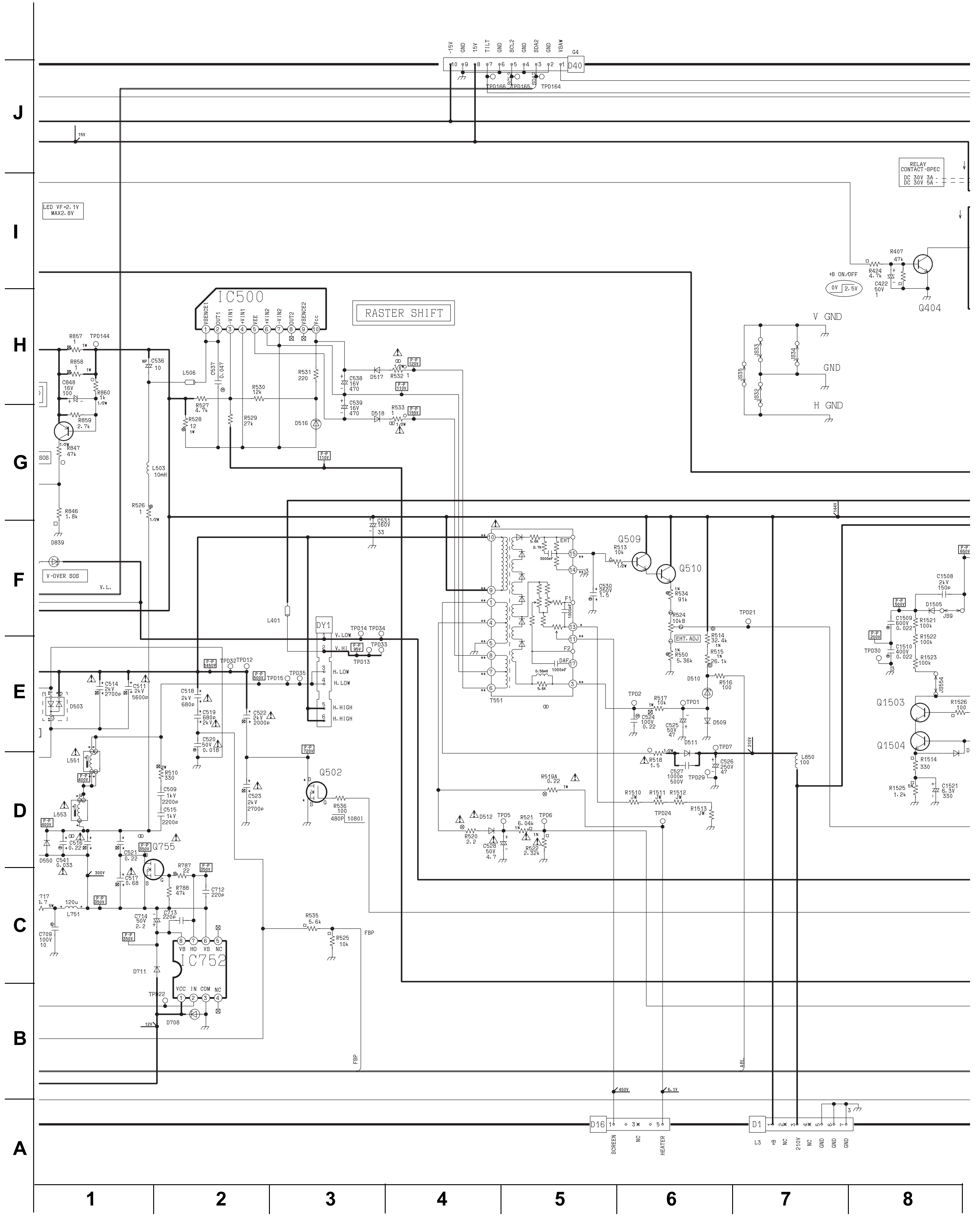
6
7
8
P3
D3
AUDIO -20V
AUDIO -20V
AUDIO GND
AUDIO GND
AUDIO +20V
AUDIO +20V
MOMENT B
+B ON/OFF
P12
D12
UNREG +25V
UNREG +25V
GND
GND
UNREG -15V
GND
UNREG +15V
UNREG +15V
P11
D11
+B 144V
+B 144V
+B 144V
GND
GND
GND
TPD161
TPD162
TPD163
TPD151
TPD160
TPD150
TPD250
TPD144
1.2A
-20V
20V
STBY B
BTL 30V
UNREG 23V
UNREG 15V
A4
D4
IC876
IN
ON/OFF
OUT
GND
D006
R899 27k
C060 50V 4.7
C826 35V 220
C880 0.01
C889 16V 100
C888 25V 100
JS886
TPA6
12V
15V
144V
R445
R441
R414 0.82
R417 2.7k
R418 47k
C420 16V 100
Q405
OCP
15V OCP SOS
R419 4.7k
R420 2.7k
R821 1.8
R822 1.8
R823 1k
C845 16V 100
R826 10k
Q804
25V OCP SOS
R829 10k
R830 2.7k
D847
R865 1k
D848
25V OVP
R855 91k
D846
D845
R856 12k
144V OVP
ADD
V-STOP SOS
CHANGE
D889
SOS
L814
LED VF=2.1V MAX2.8V
D411
D410
R857 1
R858 1
C848 16V 100
R860 1k
R859 2.7k
Q854
R847 47k
144V OCP SOS
C536 10
L503
R526 1
R848 0
D412
R846 1.8k
D839
D840
R836 1k
V-OVER SOS
V.L.
MOMENT B
+B ON/OFF
SOS
V DRIVE GC
V RASTER
TILT
SDA2
YOKO1: H NOMAL:L
SERVICE SW
SCL2
VD
D5
A5
V_DRIVE_GC
V_CENTER
TILT
SERVICE_SW
TPP30
STBY_B
R870 22k
Q861
C857 0.01
D010
R869 100
R868 22k
Q860
R867 100
NORMAL SOS
Q862
R875 47k
R876 39k
D850
Q863
R877 47k
R878 39k
D851
V.L.
HHS DET
480P 1080I
H RASTER
NC
H DRIVE GC
EWDRIVE GC
FBP
D6
A6
HHS_DET
NT_HD
RASTER_POSITION
EW_DRIVE_GC
Q512
Q513
D520
C510 220p
R512 10k
R560 100
R561 10k
R562 100k
TPQ23
R502 68
R501 100k
Q501
TPQ24
D502
HOUT
+23V
D515
JS13
C535 50V 470
R503 150 3W
C501 35V 100
C502 0.1
R504 1k
C503 500V 0.001
D501
T501
TPD16
Q551
L500
R505 10
C513 630V 10000
C532 630V 4700p
D503
C514 2kV 2700p
C511 2kV 5600p
L551
L553
L711 10
L759
C759 200V 0.1u
C706 2kV 270p
D703
D550
C516 0.22
C541 0.033
C521 0.22
C517 0.68
300V
R705 10k
R718 1k
C506 16V 470
R706 1.5k
R703 100
R702 100
PCC DRIVE
IC751
VCC
GND
R707 1k
INNER PIN
EHT DET
H DAF
V DAF
ABL
TPD167
PULSE
HDAF
PARABOLA
VDAF
HHS REF
D7
A7
R708 18k
R701 15k
Q752
C1519 35V 47
D751
R720 1.5k
R704 2k
C701 1800p
R711 6.8k
R712 1.6k
Q754
C705 680p
C704 1500p
R715 750
R714 47k
D761
EW DRIVE GC
TPD17
R717 4.7
L752
1.5mH
120u
L751
C709 100V 10
R709 68
Q751
PCC
C714 50V 2.2
D711
D2
P2
D10
TEST PIN
H DRIVE
GND
HHS REF
EHT DET
FBP

D-BOARD 1/4 TNPH0466AE CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



J
I
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B
A
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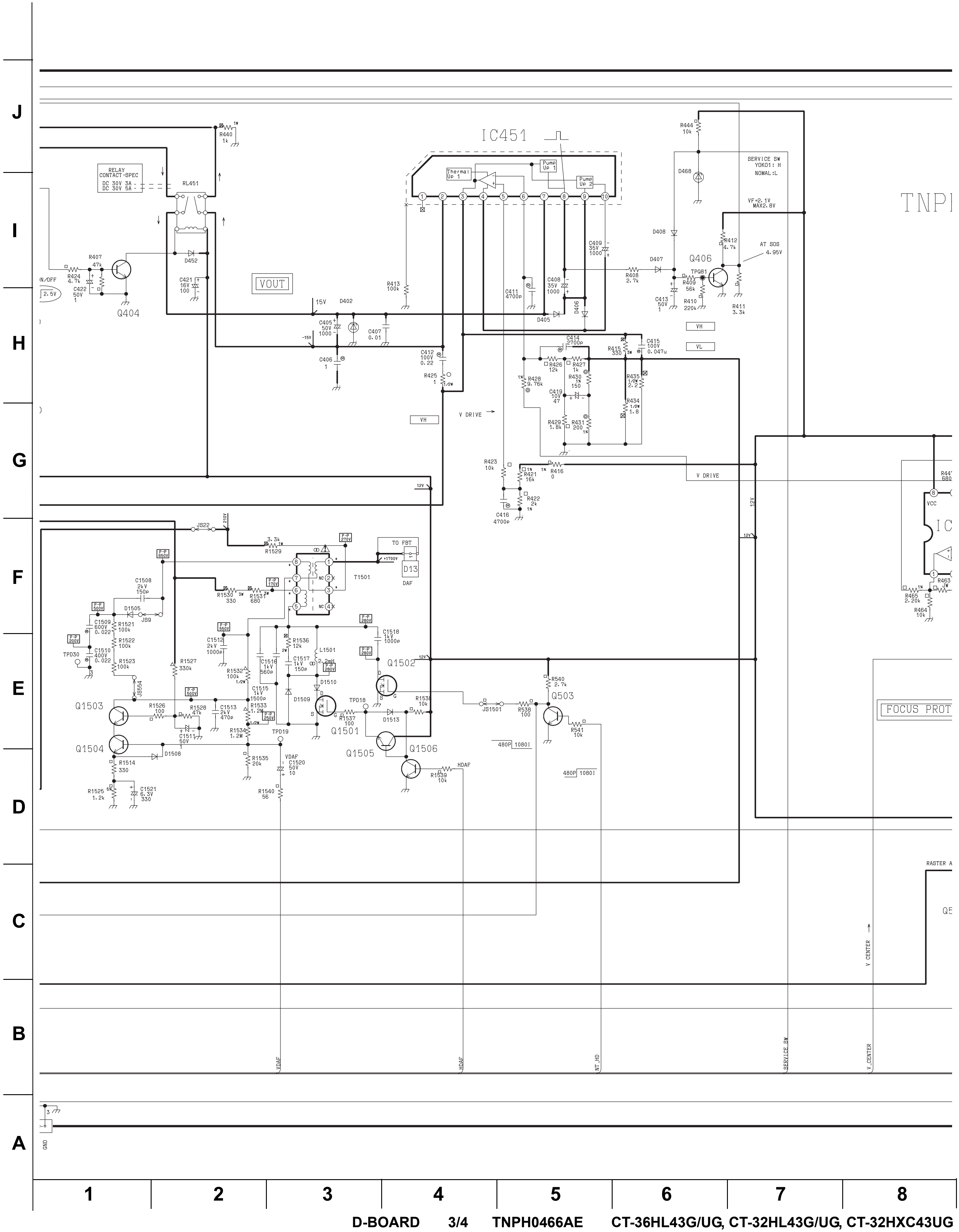
5
6
7
8
-15V
GND
15V
TILT
GND
SCL2
GND
SDA2
GND
VSAW
G4
D40
TPD166
TPD165
TPD164
15V
RELAY CONTACT-SPEC
DC 30V 3A
DC 30V 5A
LED VF=2.1V MAX2.8V
IC500
VSENCE1
OUT1
-VIN1
+VIN1
VEE
+VIN2
-VIN2
OUT2
VSENCE2
Vcc
RASTER SHIFT
R857 1
TPD144
R858 1
C848 16V 100
R860 1k 1/2W
R859 2.7k
R847 47k
SOS
R846 1.8k
D839
V-OVER SOS
V.L.
C536 10
L506
C537 0.047
R527 4.7k
R528 12 1W
R530 12k
R529 27k
R531 220
D516
C538 16V 470
C539 16V 470
D517
D518
R532 1
R533 1
P-P 120V
P-P 110V
P-P 155V
L503 10mH
R526 1
C531 160V 33
144V
Q509
Q510
R513 10k
R534 91k
R524 10kB
EHT.ADJ
R550 5.36k
R514 32.4k
R515 26.1k
R516 100
D510
D509
TPD21
EHT
F1
F2
DAF
T551
C530 250V 1.5
L401
DY1
V.LOW
V.HI
H.LOW
H.HIGH
TPD14
TPD34
TPD33
TPD13
P-P 95V
TPD32
TPD12
TPD15
TPD35
P-P 1450V
P-P 500V
C514 2kV 2700p
C511 2kV 5600p
D503
C518 2kV 680p
C519 680p 2kV
C520 50V 0.018
C522 2kV 2000p
C523 2kV 2700p
R510 330
C509 1kV 2200p
C515 1kV 2200p
L551
L553
P-P 400V
D550
C541 0.033
C516 0.22
C521 0.22
C517 0.68
Q755
R787 22
R788 47k
C712 220p
C713 220p
C714 50V 2.2
P-P 350V
300V
L751 120u
C709 100V 10
D711
IC752
VB HO VS NC
VCC IN COM NC
TPD22
D708
12V
Q502
P-P 720V
R536 100
480P 1080I
R535 5.6k
R525 10k
FBP
TPD2
R517 10k
TPD1
C524 100V 0.22
C525 50V 47
R518 1.5
D511
TPD7
C526 250V 47
C527 1000p 500V
TPD29
210V
L850 100
R519A 0.22
R1510 JW
R1511 JW
R1512 JW
R1513 JW
TPD24
D512
R520 2.2
TPD5
C528 50V 4.7
R521 6.04k
TPD6
R522 2.32k
ABL
450V
6.1V
D16
SCREEN
NC
HEATER
D1
L3
+B
NC
210V
NC
GND
GND
GND
R407 47k
R424 4.7k
C422 50V 1
+B ON/OFF
0V 2.5V
Q404
V GND
GND
H GND
JS33
JS34
JS35
JS32
P-P 650V
C1508 2kV 150p
D1505
JS9
P-P 500V
C1509 600V 0.022
R1521 100k
P-P 200V
TPD30
C1510 400V 0.022
R1522 100k
R1523 100k
JS554
Q1503
R1526 100
Q1504
R1514 330
R1525 1.2k
C1521 6.3V 330

D-BOARD 2/4 TNPH0466AE CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
I
H
G
F
E
D
C
B
A
1
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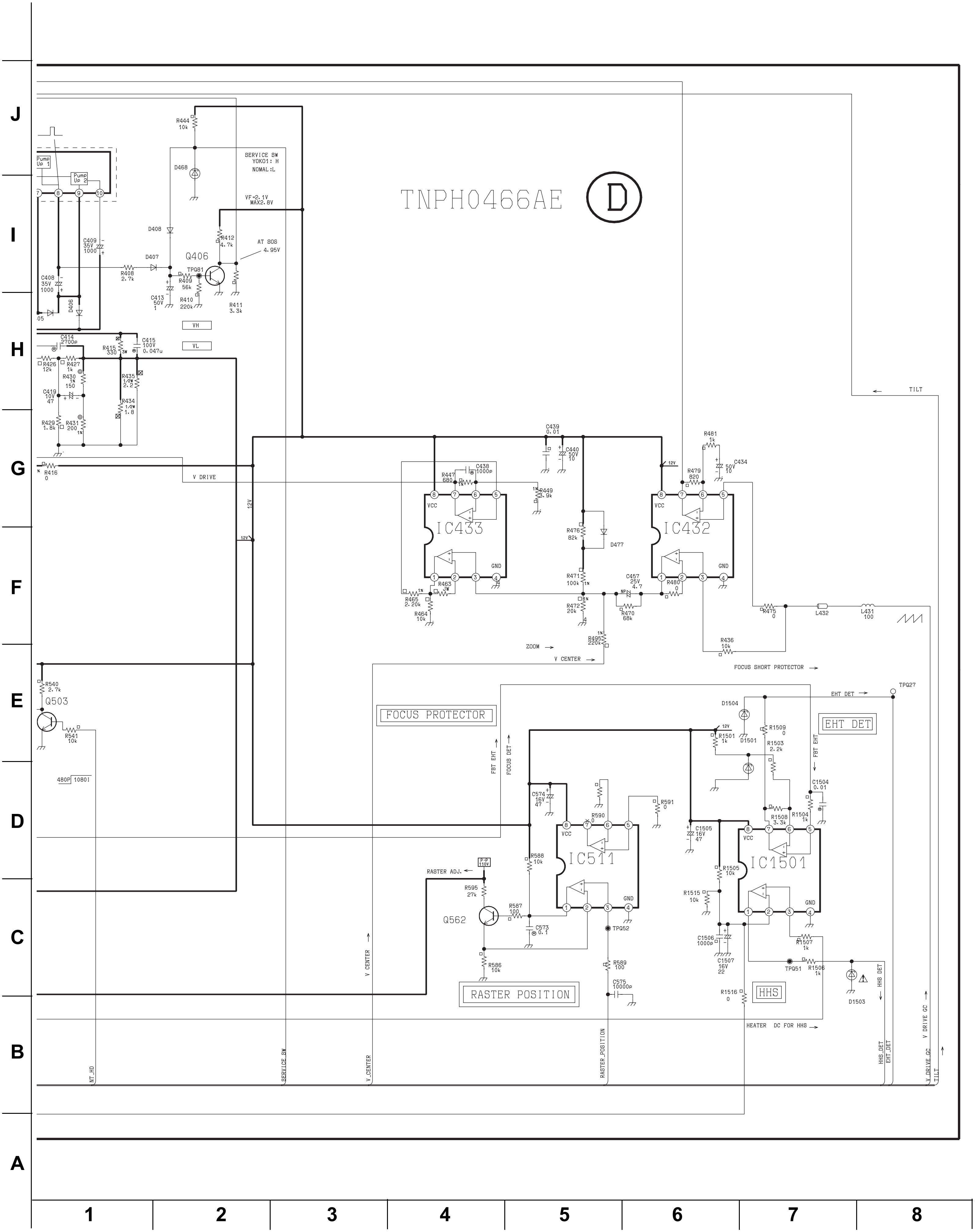
3
4
5
6
7
8
IC451
Thermal Up 1
Pump Up 1
Pump Up 2
RELAY CONTACT-SPEC
DC 30V 3A
DC 30V 5A
RL451
R440 1k 1W
R407 47k
R424 4.7k
C422 50V 1
Q404
ON/OFF
2.5V
D452
C421 16V 100
VOUT
15V
-15V
D402
C405 50V 1000
C406 1
C407 0.01
C412 100V 0.22
R425 1 1/2W
R413 100k
C411 4700p
C409 35V 1000
C408 35V 1000
D405
D406
R408 2.7k
D407
D408
D468
R444 10k
SERVICE SW
YOKO1: H
NOMAL:L
VF=2.1V
MAX2.8V
R412 4.7k
AT SOS 4.95V
Q406
TPQ81
R409 56k
R410 220k
R411 3.3k
C413 50V 1
TNP
VH
VL
C414 2700p
R415 330 3W
C415 100V 0.047u
R426 12k
R427 1k
R428 9.76k
R430 150
C419 10V 47
R435 2.2 1/2W
R434 1.8 1/2W
R429 1.8k
R431 200
V DRIVE
R423 10k
R421 16k
R416 0
R422 2k
C416 4700p
12V
R441 680
VCC
IC
R463 JW
R465 2.20k
R464 10k
JS22
210V
3.3k 1W
R1529
P-P 270V
TO FBT
+1700V
D13
DAF
T1501
NC
P-P 650V
C1508 2kV 150p
R1530 330 3W
R1531 680 3W
P-P 170V
P-P 500V
D1505
JS9
C1509 600V 0.022
R1521 100k
R1522 100k
P-P 200V
C1510 400V 0.022
TPD30
R1523 100k
R1527 330k
JS554
P-P 550V
C1512 2kV 1000p
R1532 100k
R1536 12k 2W
L1501 2.2mH
C1516 1kV 560p
C1517 1kV 150p
P-P 280V
D1510
D1509
C1518 1kV 1000p
Q1502
P-P 280V
Q1503
R1526 100
P-P 500V
R1528 47k
C1513 2kV 470p
C1515 1kV 1500p
R1533 1.2M 1/2W
P-P 250V
R1534 1.2M
Q1504
C1511 50V 1
D1508
R1514 330
R1525 1.2k
C1521 6.3V 330
R1535 20k
TPD19
C1520 50V 10
VDAF
R1540 56
TPD18
R1537 100
Q1501
D1513
R1538 10k
Q1505
Q1506
HDAF
R1539 10k
JS1501
R538 100
R540 2.7k
Q503
R541 10k
480P 1080I
FOCUS PROT
RASTER A
Q5
V CENTER
VDAF
HDAF
NT_HD
SERVICE_SW
V_CENTER
GND


TNPH0466AE
D
SERVICE SW
YOKO1: H
NOMAL:L
VF=2.1V
MAX2.8V
AT SOS
4.95V
Pump Up 1
Pump Up 2
R444 10k
D468
D408
D407
Q406
TPQ81
R412 4.7k
R408 2.7k
R409 56k
R410 220k
R411 3.3k
C413 50V 1
C408 35V 1000
C409 35V 1000
D406
VH
VL
C414 2700P
C415 100V 0.047u
R415 330 3W
R426 12k
R427 1k
R430 1% 150
R435 1/2W 2.2
R434 1/2W 1.8
C419 10V 47
R429 1.8k
R431 200 1%
R416 0
V DRIVE
12V
TILT
C439 0.01
C440 50V 10
R481 1k
C434 50V 10
R479 820
C438 1000P
R447 680
R449 3.9k
IC433
IC432
VCC
GND
R476 82k
D477
R471 100k 1%
R472 20k
C457 25V 4.7
NP
R470 68k
R480 0
R463 JW
R465 2.20k
R464 10k
R495 220k 1%
ZOOM
V CENTER
R475 0
L432
L431 100
R436 10k
FOCUS SHORT PROTECTOR
TPQ27
EHT DET
R540 2.7k
Q503
R541 10k
480P 1080I
FOCUS PROTECTOR
FBT EHT
FOCUS DET
D1504
D1501
R1501 1k
R1509 0
R1503 2.2k
C1504 0.01
R1504 1k
R1508 3.3k
C574 16V 47
R590 0
R591 0
IC511
IC1501
C1505 16V 47
R588 10k
P-P 110V
RASTER ADJ.
R595 27k
R587 100
Q562
C573 0.1
TPQ52
R1505 10k
R1515 10k
C1506 1000P
C1507 16V 22
R1507 1k
TPQ51
R1506 1k
D1503
HHS DET
R586 10k
R589 100
C575 10000P
RASTER POSITION
R1516 0
HHS
HEATER DC FOR HHS
V DRIVE GC
NT_HD
SERVICE_SW
V_CENTER
RASTER_POSITION
HHS_DET
EHT_DET
V_DRIVE_GC
TILT
J
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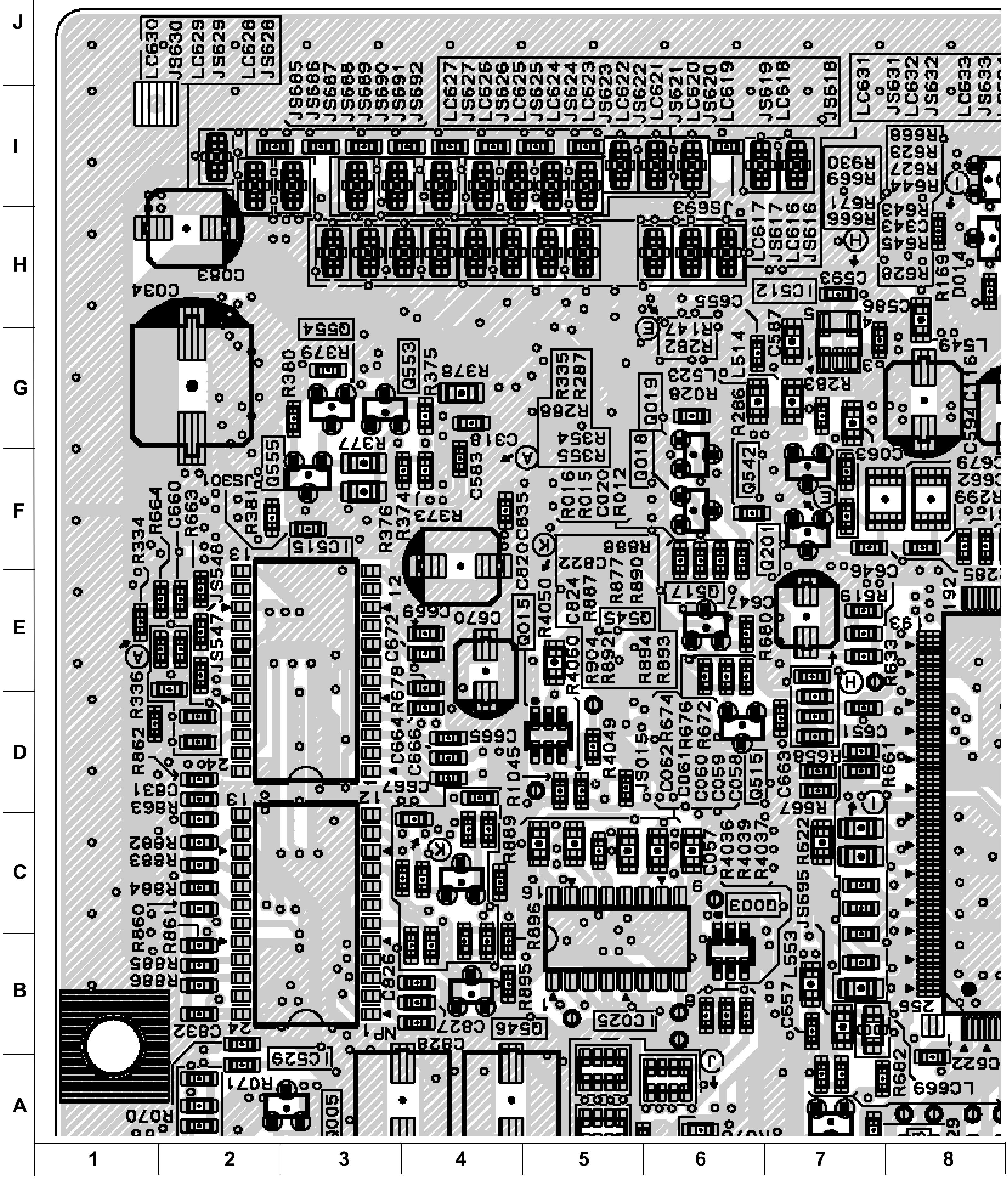
▨ 1	2
3	4

VIEW


J
I
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G
F
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D
C
B
A
1
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3
4
5
6
7
8
LC630
JS630
LC629
JS629
LC628
JS628
JS685
JS686
JS687
JS688
JS689
JS690
JS691
JS692
LC627
JS627
LC626
JS626
LC625
JS625
LC624
JS624
LC623
JS623
LC622
JS622
LC621
JS621
LC620
JS620
LC619
JS619
LC618
JS618
LC631
JS631
LC632
JS632
LC633
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R334
JS548
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R860
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R666
JS693
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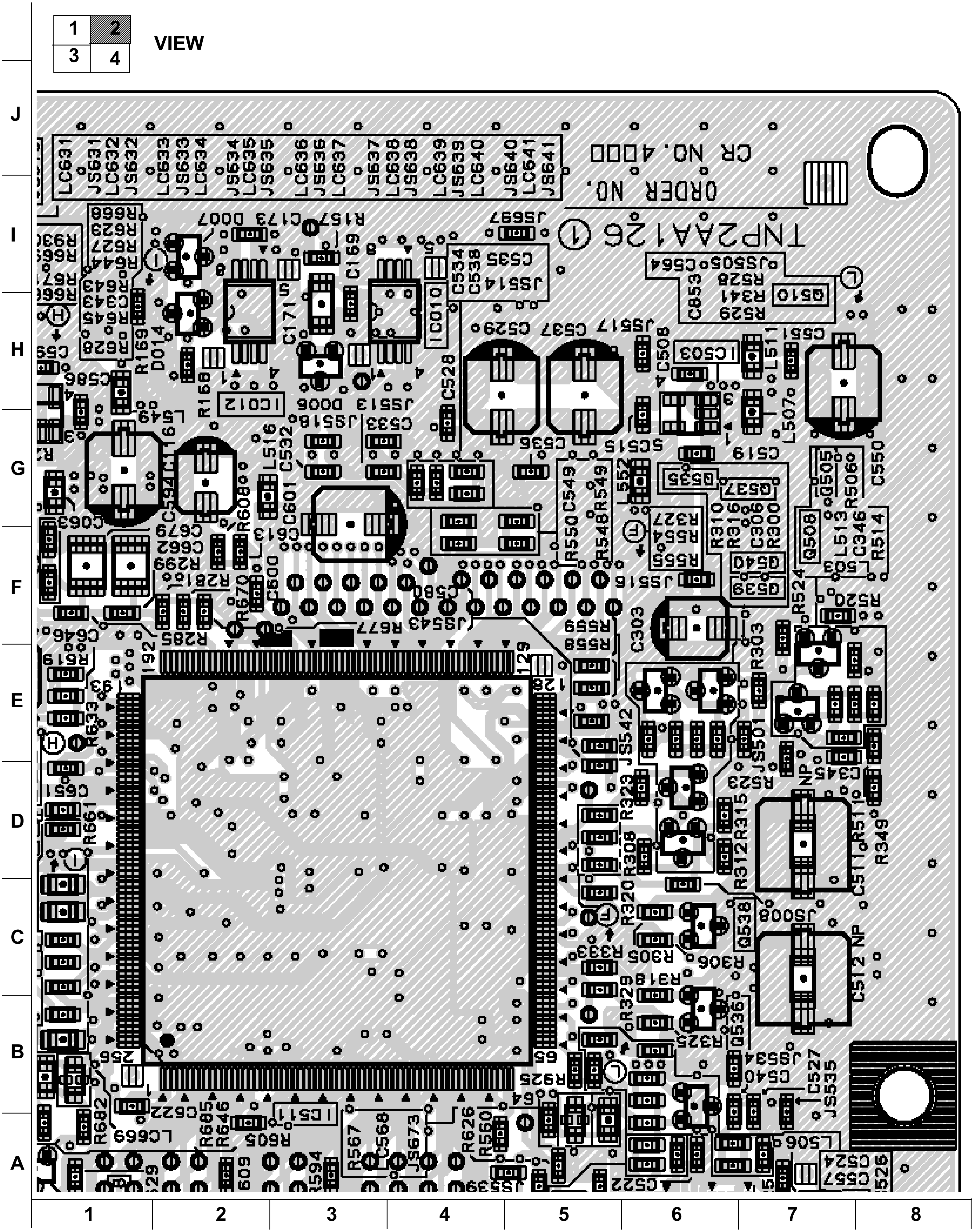
DG-BOARD BOTTOM-VIEW 1/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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TNP2AA126
ORDER NO.
CR NO.4000
IC012
IC010
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JS641
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C512
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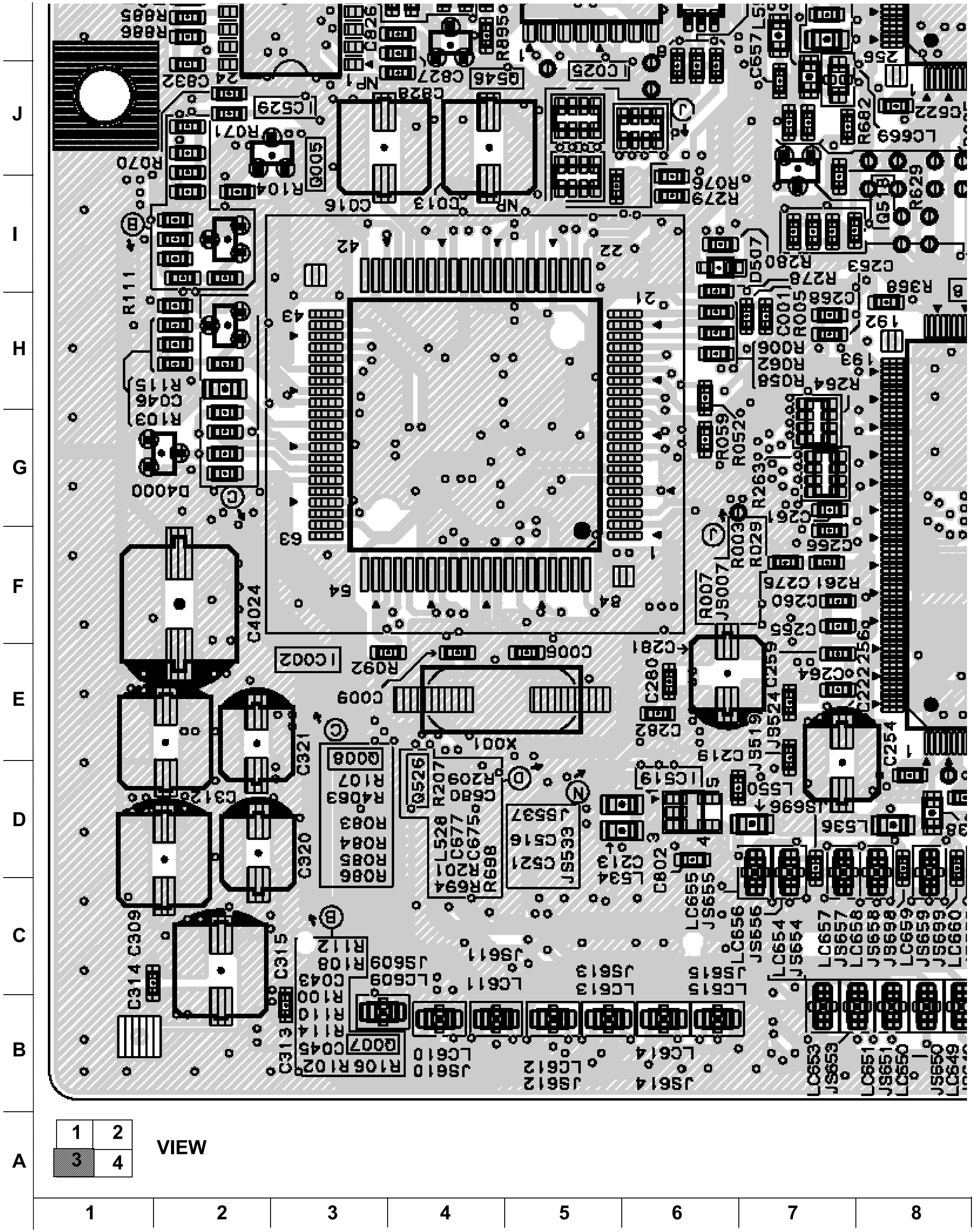
DG-BOARD BOTTOM-VIEW 2/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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C016
C013
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C265
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C266
C276
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R279
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C268
R368
R682
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C657
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R005
R006
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R062
R059
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R003
R029
R007
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JS650
LC649
NP1
NR
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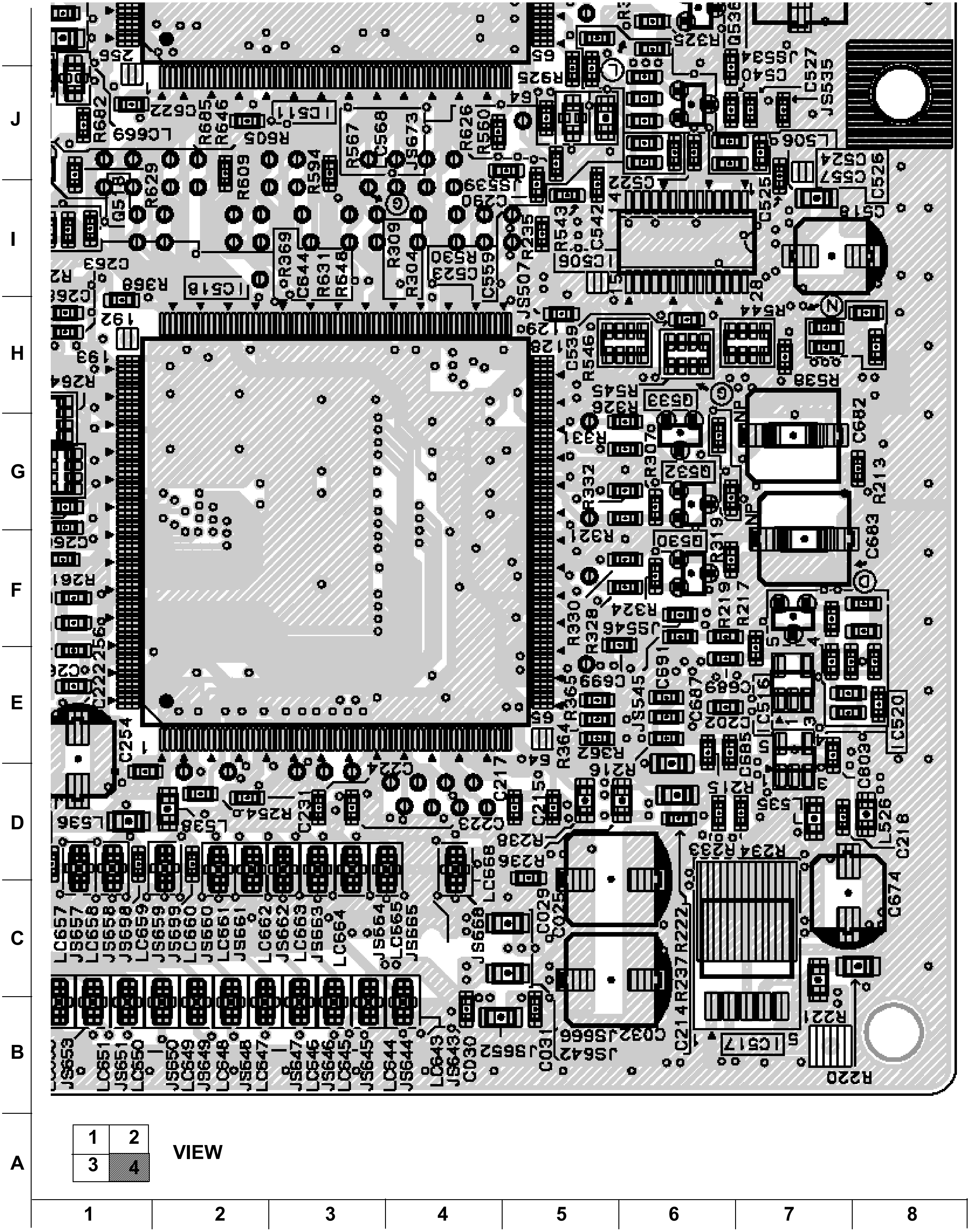
DG-BOARD BOTTOM-VIEW 3/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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C622
R685
R646
R605
IC511
R567
C568
JS673
R626
R560
R925
JS534
C540
C527
JS535
LS506
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C526
C557
C518
R629
Q518
R609
R594
JS539
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C525
C542
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IC506
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IC518
R369
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C689
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IC520
C685
C803
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R364
R362
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C254
C224
C217
C215
C231
C223
R254
LS38
LS36
LS535
LS26
C218
R238
R236
LC668
R233
R234
C674
C029
C025
R222
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C030
JS652
C031
JS642
C032
JS666
IC517
R221
R220

DG-BOARD BOTTOM-VIEW 4/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG

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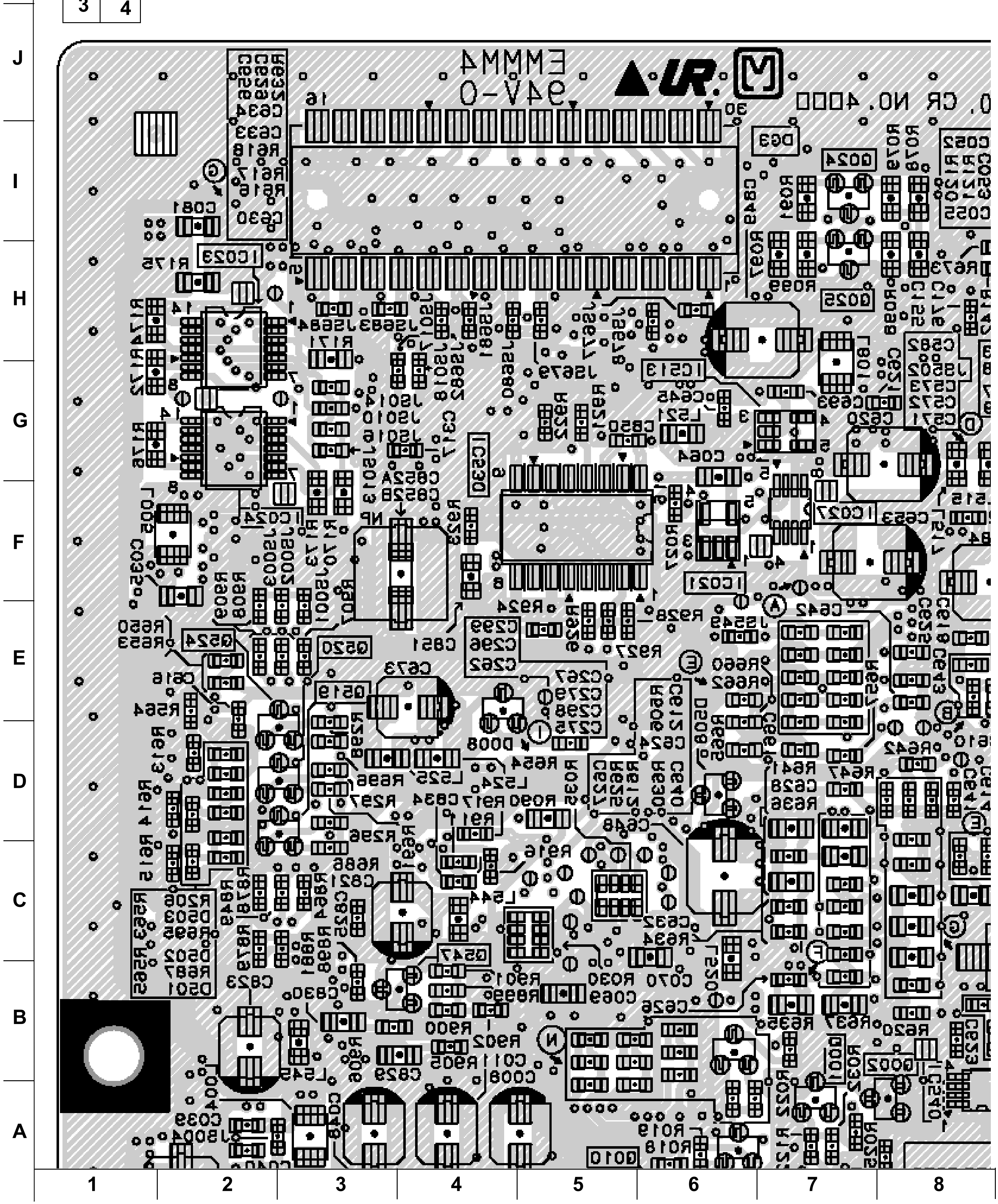
VIEW



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Q024
Q025
IC023
IC024
IC513
IC530
IC021
IC027
Q524
Q520
Q519
Q547
Q002
Q010
C081
R175
R171
R174
R172
R176
L002
C035
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R928
R927
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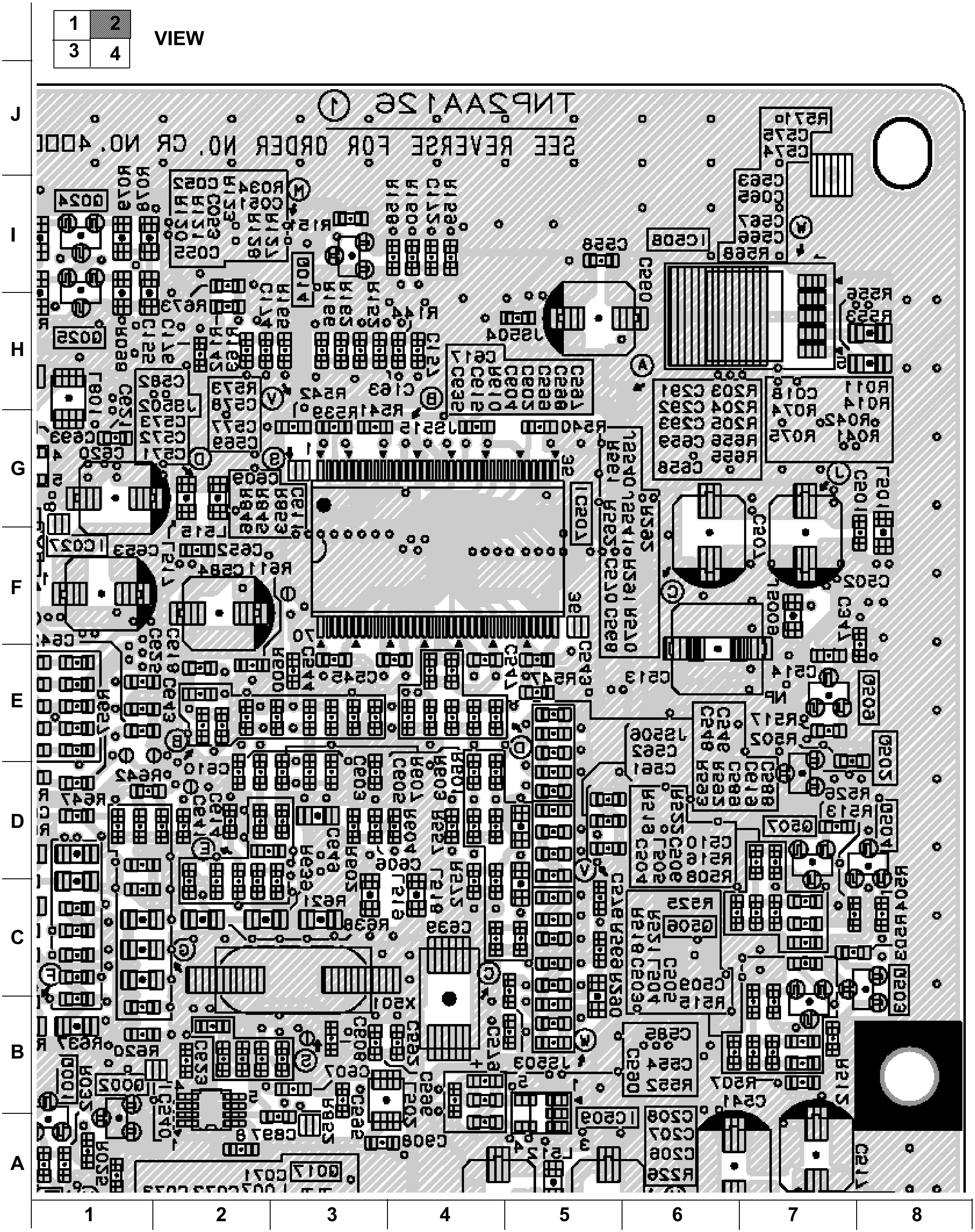
DG-BOARD TOP-VIEW 1/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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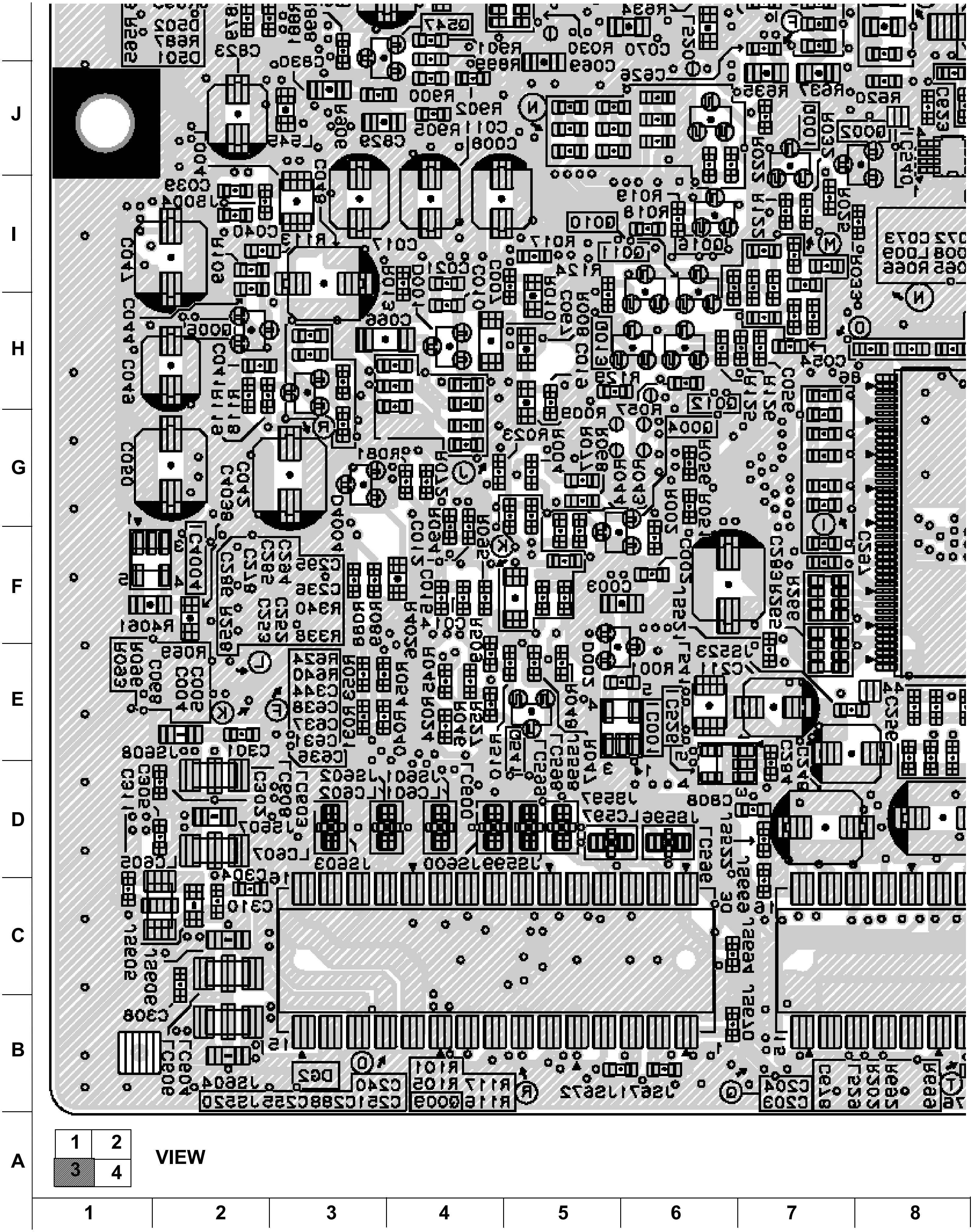
DG-BOARD TOP-VIEW 2/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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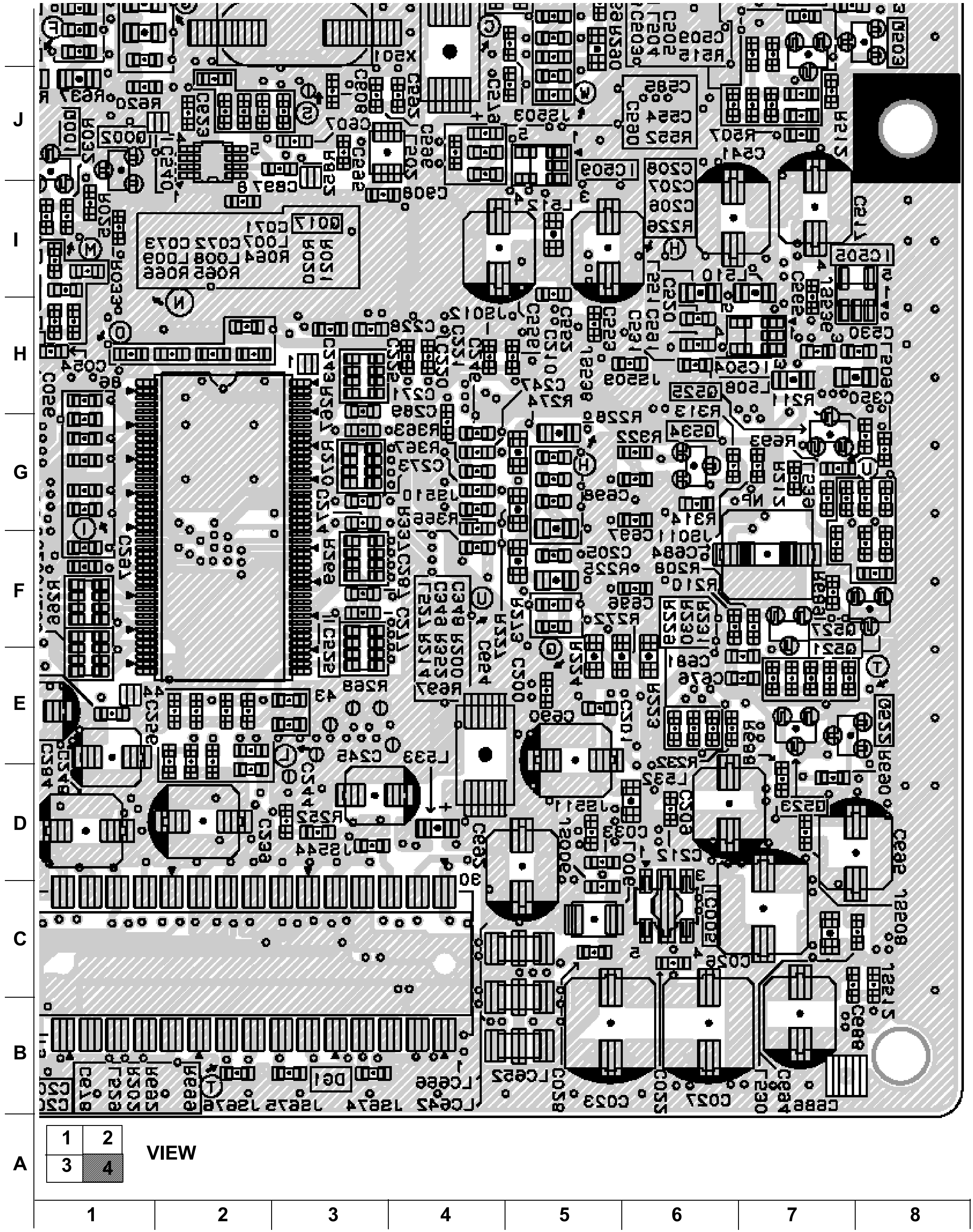
DG-BOARD TOP-VIEW 3/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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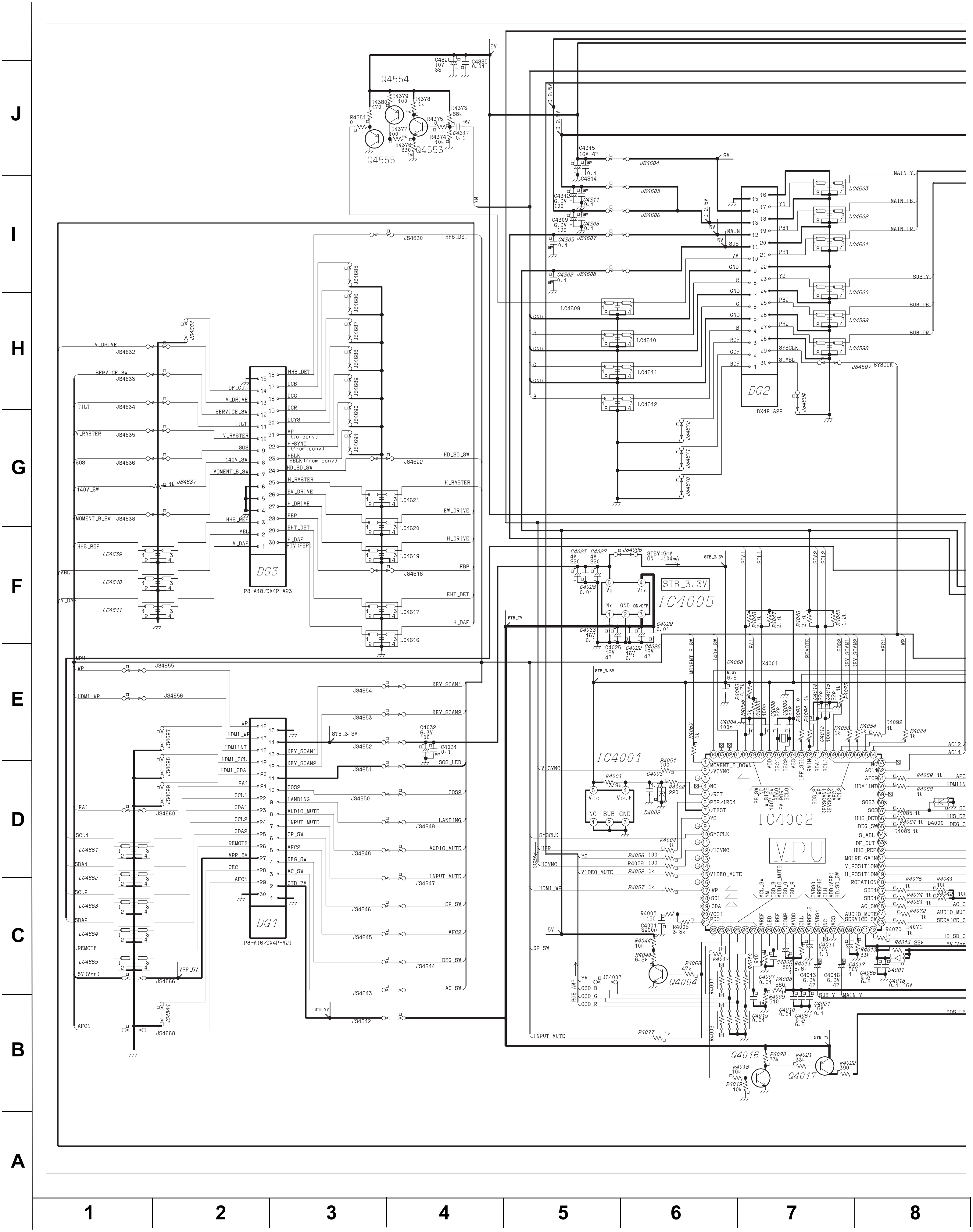
VIEW

DG-BOARD TOP-VIEW 4/4 TNP2AA126 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG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Q4555
Q4553
9V
C4820 10V 33
C4835 0.01
R4380 470
R4379 100
R4378 1k
R4381 0
R4377 100
R4376 330
R4375 0
R4374 10k
R4373 68k
C4317 0.1
D_2.5V
C4315 16V 47
C4314 0.1
C4312 6.3V 100
C4311 0.1
C4309 6.3V 100
C4308 0.1
C4305 0.1
C4302 0.1
JS4604
JS4605
JS4606
JS4607
JS4608
LC4609
LC4610
LC4611
LC4612
LC4603
LC4602
LC4601
LC4600
LC4599
LC4598
MAIN_Y
MAIN_PB
MAIN_PR
SUB_Y
SUB_PB
SUB_PR
SYSCLK
S_ABL
JS4597
JS4694
JS4672
JS4671
JS4670
DG2
DX4P-A22
JS4630
HHS_DET
JS4685
JS4686
JS4687
JS4688
JS4689
JS4690
JS4691
JS4684
V_DRIVE
JS4632
SERVICE_SW
JS4633
TILT
JS4634
V_RASTER
JS4635
SOS
JS4636
140V_SW
JS4637
MOMENT_B_SW
JS4638
HHS_REF
LC4639
ABL
LC4640
V_DAF
LC4641
DG3
P8-A18/DX4P-A23
HD_SD_SW
JS4622
H_RASTER
LC4621
EW_DRIVE
LC4620
H_DRIVE
LC4619
FBP
JS4618
EHT_DET
LC4617
H_DAF
LC4616
MPU
WP
JS4655
HDMI_WP
JS4656
JS4697
JS4698
JS4699
FA1
JS4660
SCL1
LC4661
SDA1
LC4662
SCL2
LC4663
SDA2
LC4664
REMOTE
LC4665
5V(Vpp)
VPP_5V
JS4666
JS4544
AFC1
JS4668
DG1
P8-A16/DX4P-A21
KEY_SCAN1
JS4654
KEY_SCAN2
JS4653
STB_3.3V
JS4652
C4032 6.3V 100
C4031 0.1
SOS_LED
JS4651
SOS2
JS4650
LANDING
JS4649
AUDIO_MUTE
JS4648
INPUT_MUTE
JS4647
SP_SW
JS4646
AFC2
JS4645
DEG_SW
JS4644
AC_SW
JS4643
STB_7V
JS4642
C4023 4V 220
C4027 4V 220
JS4006
STBY:9mA
ON :104mA
C4028 0.01
STB_3.3V
IC4005
Vo
Vin
Nr
GND
ON/OFF
C4033 16V 0.1
C4025 16V 47
C4022 16V 0.1
C4026 16V 47
C4029 0.01
R4048 4.7k
R4047 2.7k
R4046 2.7k
R4045 1.2k
X4001
C4068 6.3V 6.8
R4093 4.7k
R4096 1k
C4005 100p
C4006 22p
C4009 27p
R4095 0
C4014 22p
C4015 22p
R4023 1k
C4004 100p
R4069 1k
C4012 100p
R4053 1k
R4054 1k
R4092 1k
R4024 1k
IC4001
R4051 100
R4001 3.9k
C4003 4.7
R4002 220
D4002
Vcc
Vout
NC
SUB
IC4002
MPU
V_SYNC
SYSCLK
HFR
YS
HSYNC
VIDEO_MUTE
HDMI_WP
R4004 1k
R4056 100
R4059 100
R4052 1k
R4057 1k
R4005 150
C4001 3900p
R4006 3.3k
R4044 10k
R4043 6.8k
5V
SP_SW
RGB AMP
YM
OSD_B
OSD_G
OSD_R
JS4007
R4068 47k
Q4004
R4017
R4007
R4003
R4010 910
C4007 0.01
C4008 50V 1
R4008 680
R4009 510
C4019 0.01
C4010 0.01
R4011 6.8k
C4013 6.3V 47
C4016 6.3V 47
C4011 50V 1.0
C4017 50V 1
C4021 16V 0.1
C4067 6.3V 6.8
C4066 6.3V 6.8
C4018 0.1 16V
D4001
R4013 33k
R4014 22k
R4070 1k
R4071 1k
R4072 1k
R4081 1k
R4074 1k
R4042 10k
R4075 1k
R4041 10k
R4089 1k
R4088 1k
R4085 1k
R4084 1k
R4083 1k
D4000
SUB_Y
MAIN_Y
INPUT_MUTE
R4077 1k
STB_7V
Q4016
R4020 33k
R4021 33k
R4018 10k
R4019 10k
Q4017
R4022 390
ACL2
ACL1
AFC
HDMIIN
SO
HHS_DE
DEG_S
AC_S
AUDIO_MUT
SERVICE_S
HD_SD_S
5V(Vpp)
SOS_LE
MOMENT_B_DOWN
/VSYNC
/RST
P52/IRQ4
/TEST
/HSYNC
VIDEO_MUTE
SCL
SDA
VCOI
PDO
ACL1
AFC2
HDMIINT
SOS3
SOS
HHS_DET
DEG_SW
S_ABL
DF_CUT
HHS_REF
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V_POSITION
H_POSITION
ROTATION
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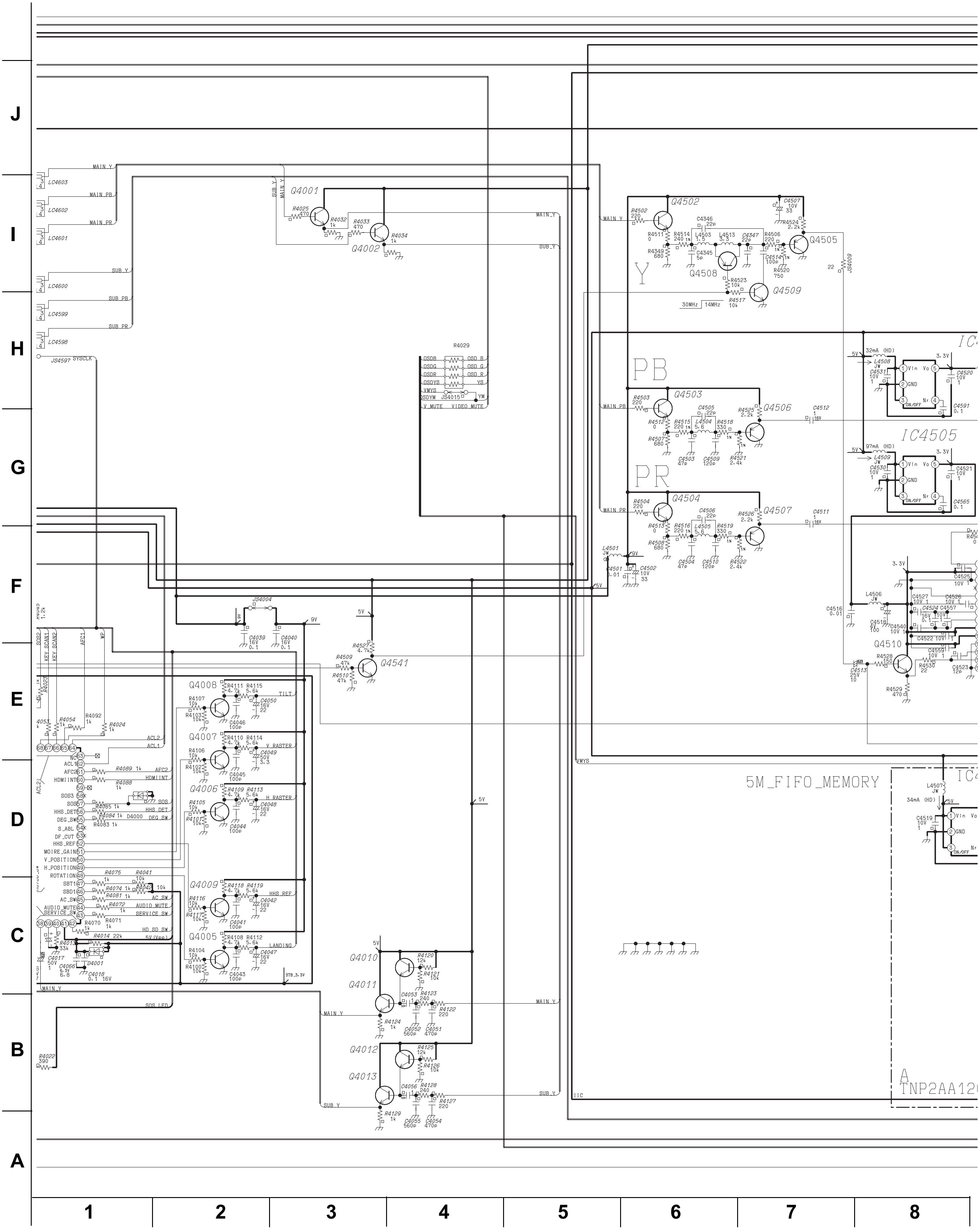
SBD1
AC_SW
AUDIO_MUTE
SERVICE_SW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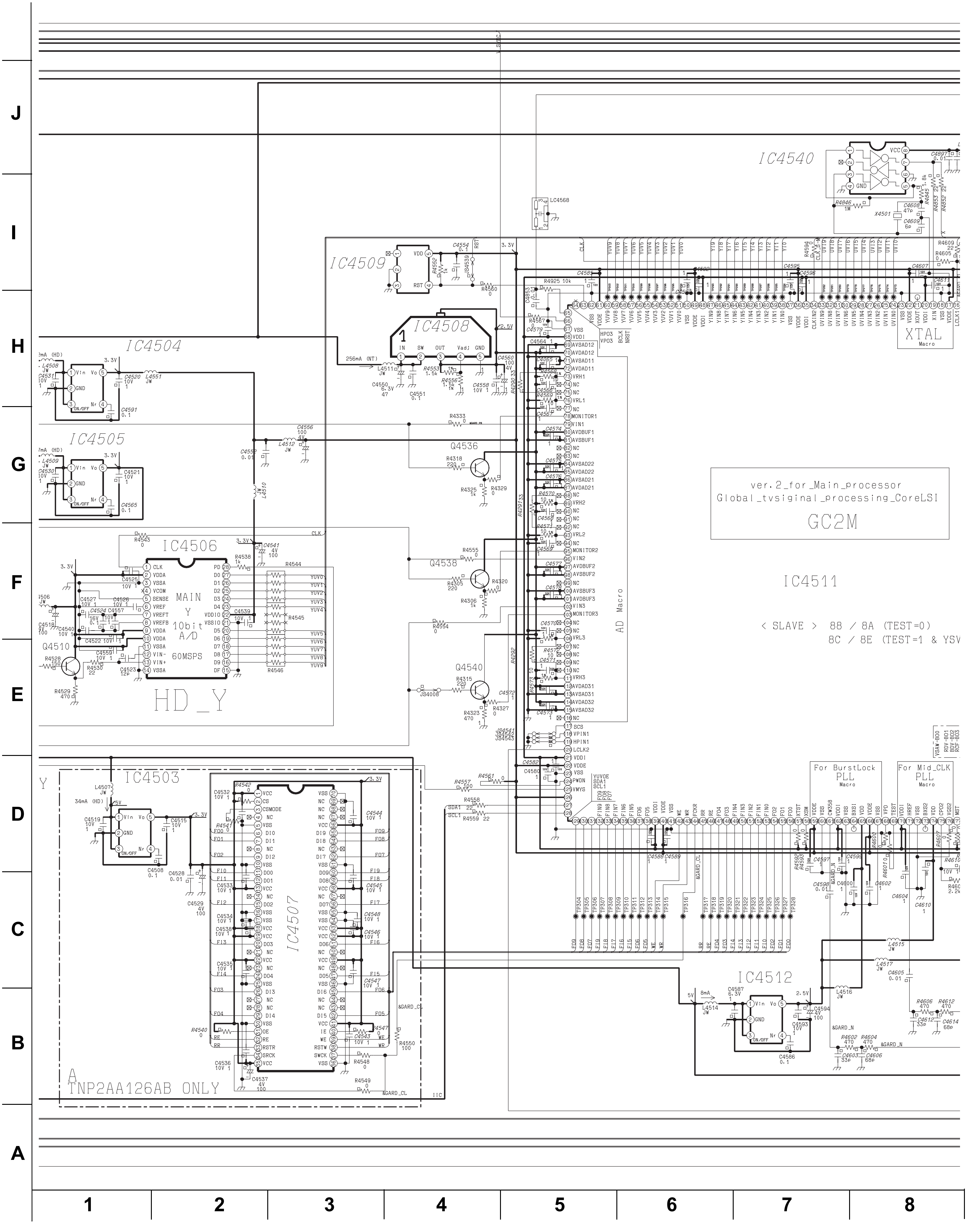
LC4603
LC4602
LC4601
LC4600
LC4599
LC4598
MAIN_Y
MAIN_PB
MAIN_PR
SUB_Y
SUB_PB
SUB_PR
JS4597 SYSCLK
Q4001
Q4002
R4025 470
R4032 1k
R4033 470
R4034 1k
R4029
OSDB
OSDG
OSDR
OSDYS
VMYS
OSDYM
JS4015
OSD_B
OSD_G
OSD_R
YS
YM
V_MUTE
VIDEO_MUTE
Q4502
Q4503
Q4504
Q4505
Q4506
Q4507
Q4508
Q4509
Q4510
Q4541
Y
PB
PR
30MHz
14MHz
JS4009
IC4505
5V
3.3V
32mA (HD)
97mA (HD)
34mA (HD)
L4508
L4509
L4506
L4507
L4501
JS4004
9V
Vin
Vo
GND
ON/OFF
Nr
5M_FIFO_MEMORY
TNP2AA12
Q4008
Q4007
Q4006
Q4009
Q4005
Q4010
Q4011
Q4012
Q4013
TILT
V_RASTER
H_RASTER
HHS_REF
LANDING
STB_3.3V
ACL2
ACL1
NC
AFC2
HDMIINT
SOS3
SOS
HHS_DET
DEG_SW
S_ABL
DF_CUT
MOIRE_GAIN
V_POSITION
H_POSITION
ROTATION
SBT1
SBD1
AC_SW
AUDIO_MUTE
SERVICE_SW
HD_SD_SW
5V(Vpp)
SOS_LED
D4000
D4001
R4022 390
KEY_SCAN1
KEY_SCAN2
AFC1
WP
IIC
VMYS

DG-BOARD 2/6 TNP2AA126AB/DG CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



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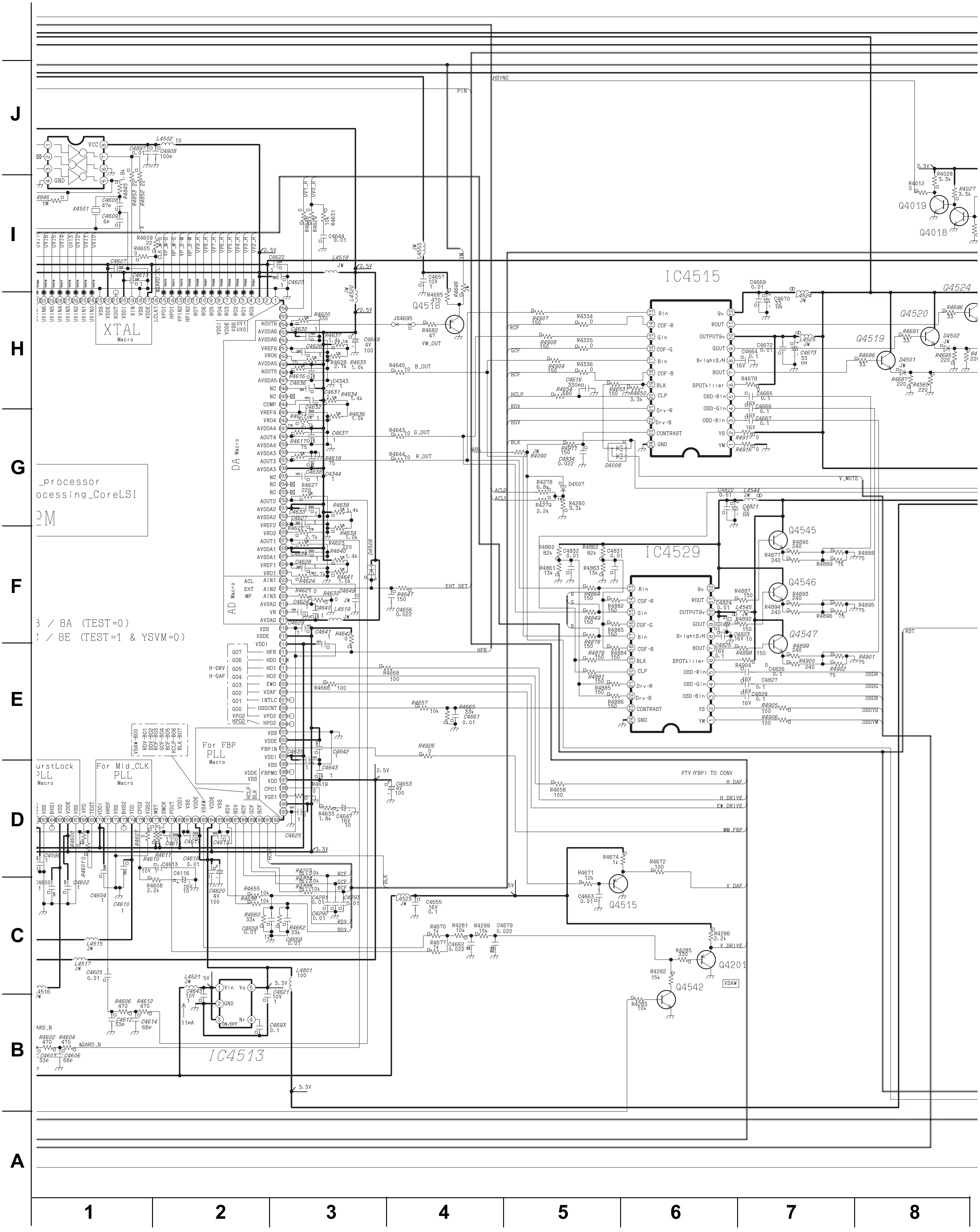
IC4540
IC4509
IC4508
IC4504
IC4505
IC4506
MAIN
Y
10bit
A/D
60MSPS
HD_Y
IC4503
IC4507
IC4511
IC4512
A
TNP2AA126AB ONLY
Q4510
Q4536
Q4538
Q4540
XTAL
Macro
AD Macro
ver.2_for_Main_processor
Global_tvsiginal_processing_CoreLSI
GC2M
< SLAVE > 88 / 8A (TEST=0)
8C / 8E (TEST=1 & YSV
For BurstLock
PLL
For Mid_CLK
PLL
256mA (NT)
34mA (HD)
8mA
3.3V
2.5V
5V
X4501
LC4568
JS4008
&GARD_CL
&GARD_N
IIC
SDA1
SCL1
CLK



J
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HSYNC
PIN
XTAL
Macro
DA Macro
AD Macro
_processor
ocessing_CoreLSI
2M
3 / 8A (TEST=0)
/ 8E (TEST=1 & YSVM=0)
For FBP
PLL
Macro
urstLock
PLL
Macro
For Mid_CLK
PLL
Macro
IC4515
IC4529
IC4513
Q4518
Q4515
Q4542
Q4201
Q4545
Q4546
Q4547
Q4519
Q4520
Q4524
Q4019
Q4018
D4008
D4507
D4508
D4501
D4502
B_OUT
G_OUT
R_OUT
VM_OUT
EHT DET
HFR
ABL
ACL2
ACL1
V_MUTE
RST
PTV(FBP) TO CONV
H_DAF
H_DRIVE
EW_DRIVE
MM_FBP
V_DAF
V_DRIVE
VSAW
OSDR
OSDG
OSDB
OSDYS
OSDYM
RCF
GCF
BCF
BLK
HCLP
RDV
BDV
H-DRV
H-DAF
11mA
2.5V
3.3V
5V
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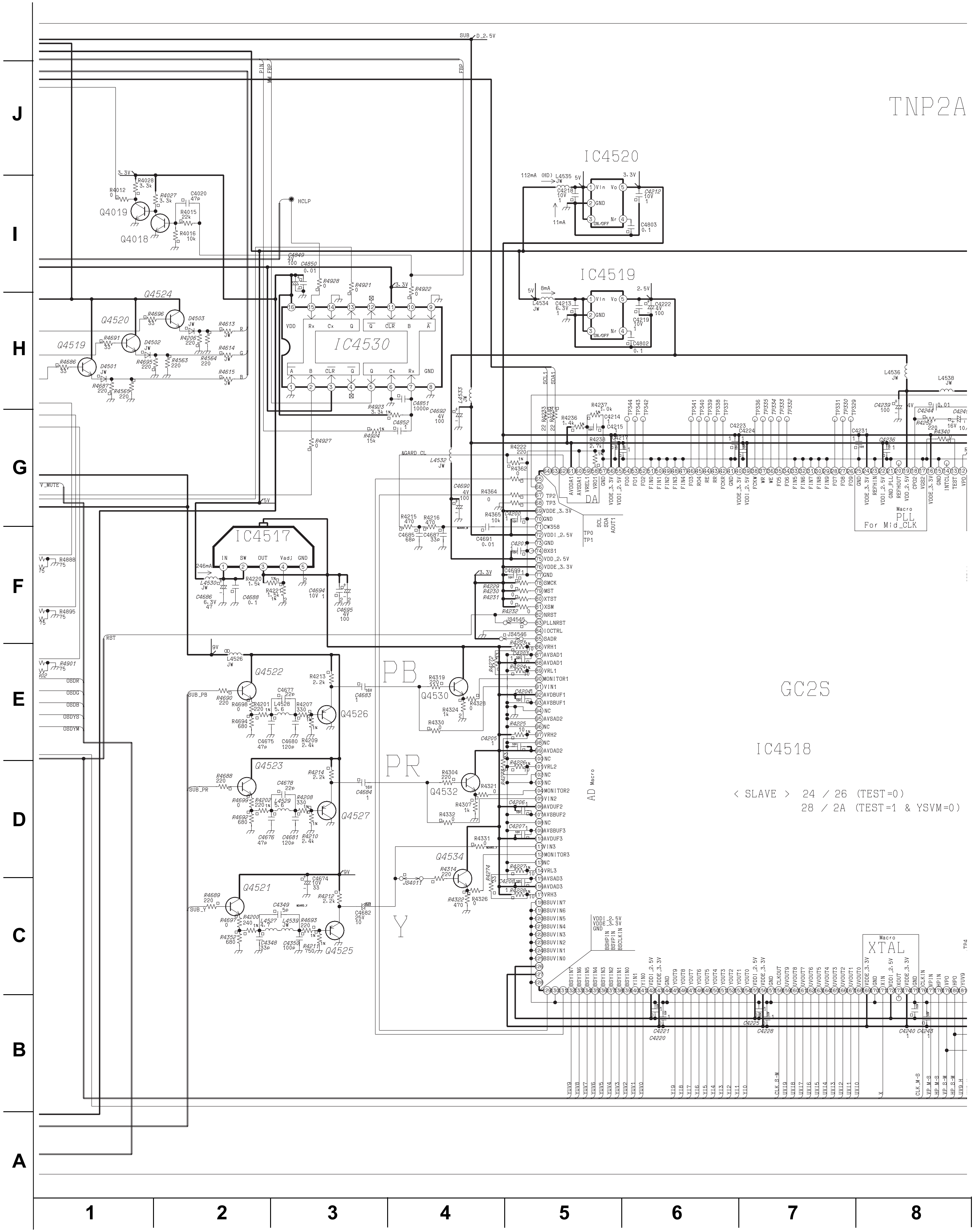
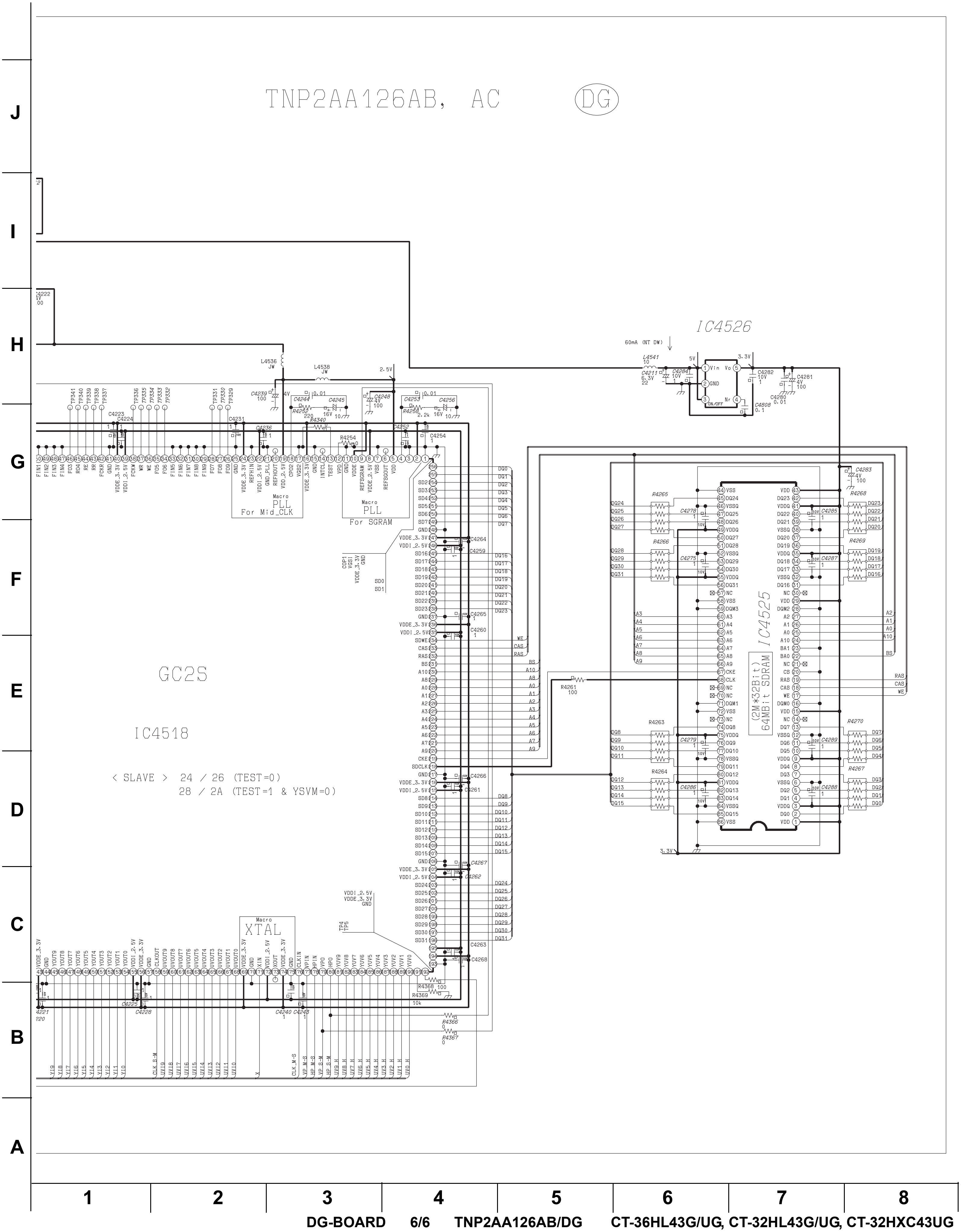
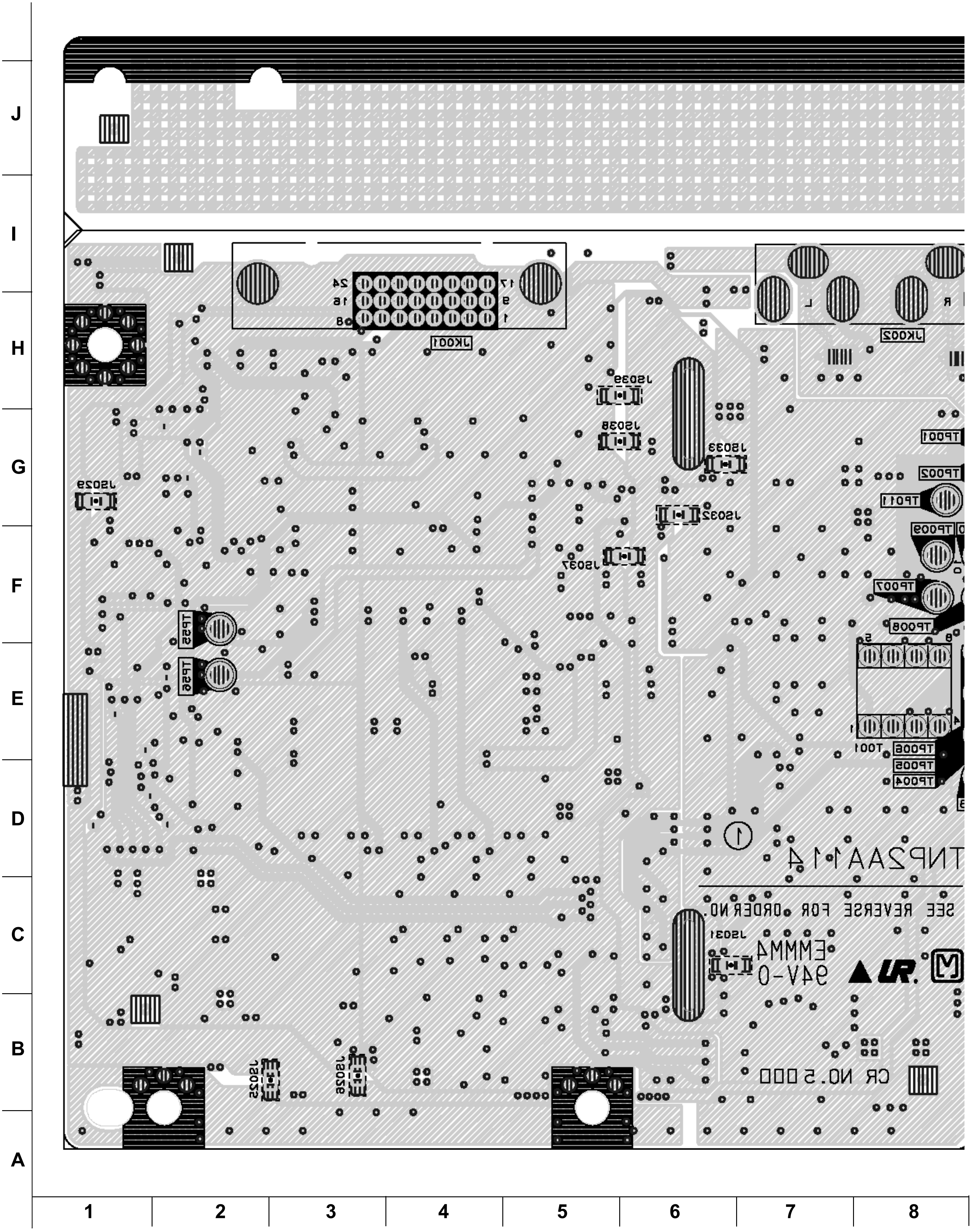
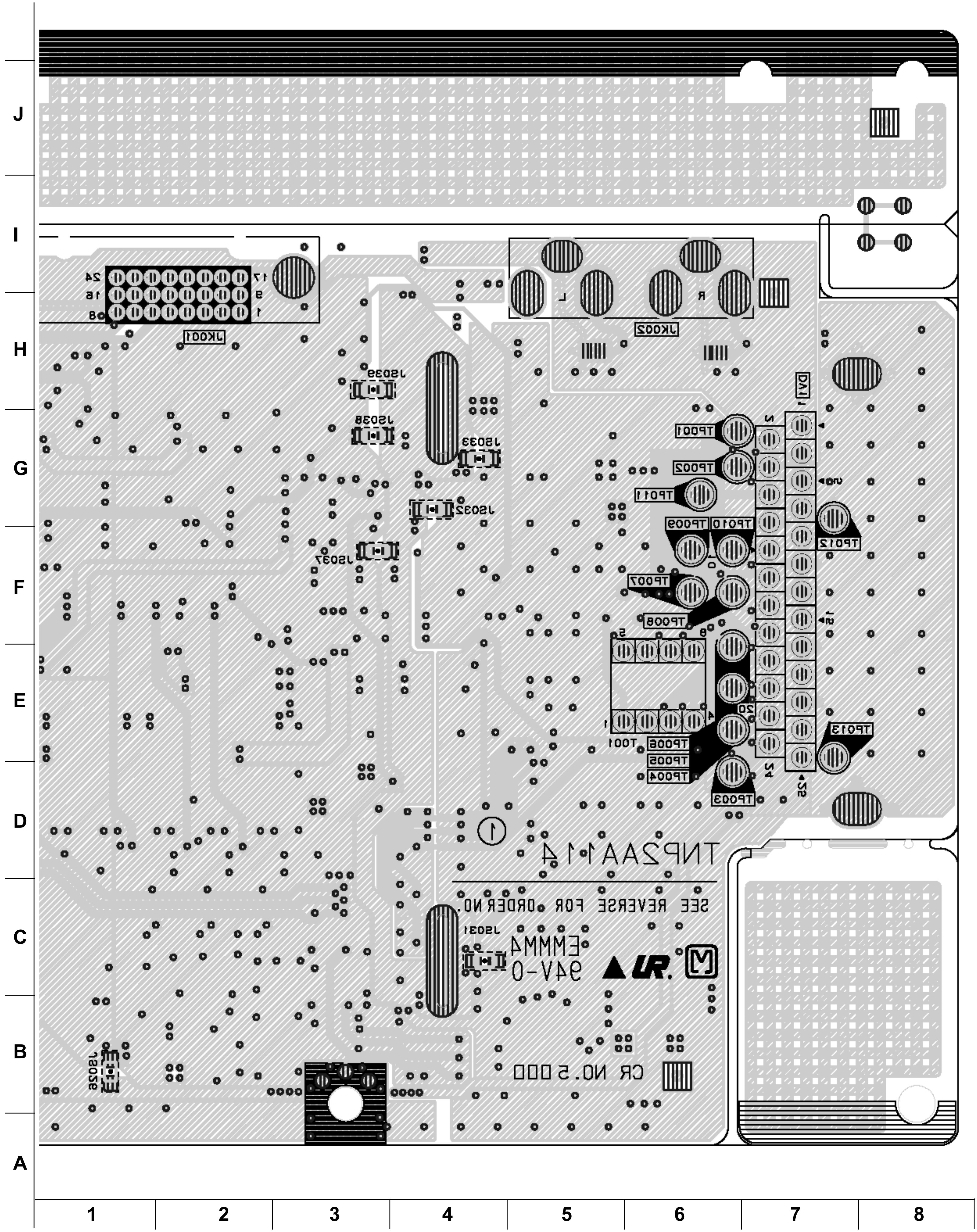
DG-BOARD 4/6 TNP2AA126AB/DG CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


TNP2A
IC4520
IC4519
IC4530
IC4517
IC4518
GC2S
< SLAVE > 24 / 26 (TEST=0)
28 / 2A (TEST=1 & YSVM=0)
PLL
For Mid_CLK
XTAL
AD Macro
DA
PB
PR
Y
SUB_D_2.5V
HCLP
V_MUTE
RST
SUB_PB
SUB_PR
SUB_Y
OSDR
OSDG
OSDB
OSDYS
OSDYM
Q4019
Q4018
Q4524
Q4520
Q4519
Q4522
Q4526
Q4523
Q4527
Q4521
Q4525
Q4530
Q4532
Q4534
VDD
GND
IN
SW
OUT
Vadj
Vin
Vo
Nr
ON/OFF
112mA (HD)
11mA
8mA
246mA
3.3V
5V
2.5V
9V
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


TNP2AA126AB, AC
DG
IC4526
60mA (NT DW)
5V
3.3V
L4541 10
C4211 6.3V 22
C4284 10V 1
C4282 10V 1
C4281 4V 100
C4280 0.01
C4808 0.1
Vin
Vo
GND
ON/OFF
Nr
L4536 JW
L4538 JW
2.5V
C4239 100
C4244 0.01
C4245 16V 10
R4252 220
R4340
C4248 4V 100
C4253 0.01
C4256 16V 10
R4258 2.2k
R4254 0
C4223
C4224
C4231
C4236
C4252
C4254
TP341
TP340
TP339
TP338
TP337
TP336
TP335
TP334
TP333
TP332
TP331
TP330
TP329
Macro PLL For Mid_CLK
Macro PLL For SGRAM
GC2S
IC4518
< SLAVE > 24 / 26 (TEST=0)
28 / 2A (TEST=1 & YSVM=0)
Macro XTAL
C4264
C4259
C4265
C4260
C4266
C4261
C4267
C4262
C4263
C4268
R4261 100
R4368 100
R4369 10k
R4366 0
R4367 0
C4221 220
C4225
C4228
C4240
C4243
VDDI_2.5V
VDDE_3.3V
GND
TP4
TP5
IC4525
(2M*32Bit) 64MBit SDRAM
C4283 4V 100
R4265
R4266
R4263
R4264
R4268
R4269
R4270
R4267
C4278
C4275
C4279
C4286
C4285
C4287
C4289
C4288
3.3V
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
JK001
JK002
JS039
JS038
JS033
JS029
JS032
JS037
JS031
JS025
JS026
TP001
TP002
TP011
TP009
TP007
TP008
TP006
TP005
TP004
TP55
TP56
T001
L
R
24
16
8
17
9
1
TNP2AA114
SEE REVERSE FOR ORDER NO.
EMMM4
94V-0
CR NO.5000

DV-BOARD BOTTOM-VIEW 1/2 TNP2AA114 CT-36HL43G/UG, CT-32HL43G/UG,


J
I
H
G
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E
D
C
B
A
1
2
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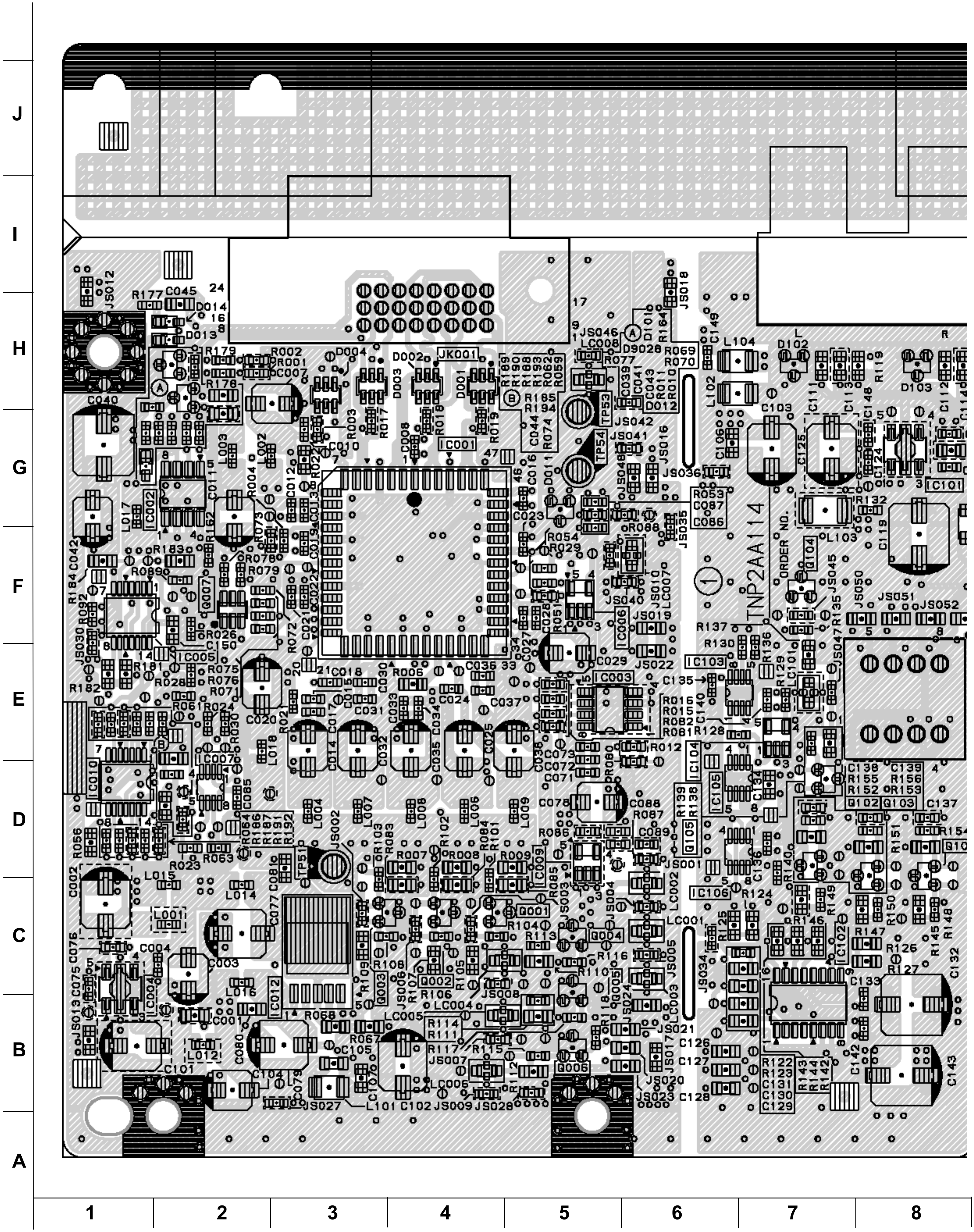
7
8
JK001
JK002
JS039
JS038
JS033
JS032
JS037
JS031
JS026
TP001
TP002
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP012
TP013
T001
DA1
L
R
TNP2AA114
SEE REVERSE FOR ORDER NO.
EMMM4
94V-0
CR NO.5000

DV-BOARD BOTTOM-VIEW 2/2 TNP2AA114 CT-36HL43G/UG, CT-32HL43G/UG


J
I
H
G
F
E
D
C
B
A
1
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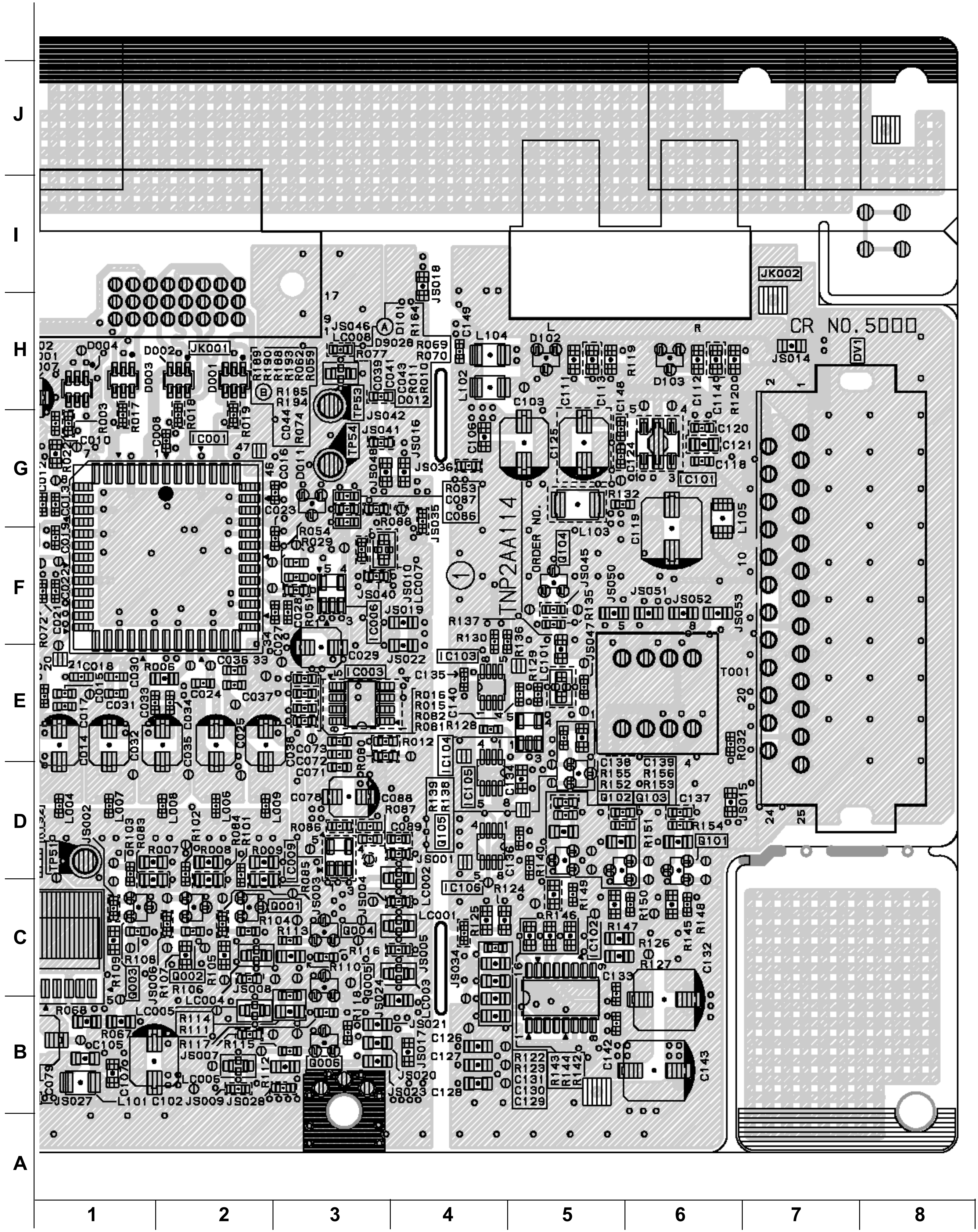
6
7
8
TNP2AA114
ORDER NO.
1
JS012
R177
C045
24
D014
16
8
D013
R179
R002
R001
C007
R178
C040
L003
L002
IC002
C011
L017
R004
R162
R073
C042
R184
R183
R089
R092
Q007
R026
C150
IC005
R076
R079
R072
JS030
R181
R182
R075
R028
R071
R061
R024
R030
C020
R021
L018
IC010
IC007
C085
R064
R186
R187
R191
R192
R056
R023
R063
C002
L015
L014
L001
C076
C075
C004
C003
L004
L016
C001
JS013
C012
L012
C101
C080
C104
C079
JS027
L101
C102
JS009
JS028
D004
D002
JK001
D003
D001
R003
R017
R018
R019
C010
C008
IC001
47
R022
C012
C013
C019
C022
C021
R189
R190
R193
R062
R059
R185
R194
C044
R074
C016
D011
C023
R054
R029
C028
R051
C027
C029
C036
R006
C018
C015
C030
C024
C037
C017
C031
C033
C034
C014
C032
C035
C025
C038
C073
C072
C071
R080
C078
C088
R087
C089
R086
R085
C009
R009
R008
R007
R102
R101
R084
R083
R103
JS002
TP51
C081
C077
L007
L008
L006
L009
Q001
R104
R113
Q004
R116
R110
Q005
JS003
JS004
JS005
R109
R108
Q003
Q002
R106
R107
R105
JS006
JS008
LC004
LC005
R114
R111
R117
R115
JS007
LC006
R068
R067
C105
C107
R112
Q006
R118
JS024
LC003
JS021
JS017
JS020
JS023
LC001
LC002
JS001
17
JS046
LC008
D9026
R077
C039
C041
C043
D012
R011
R010
D101
R164
R069
R070
JS018
TP53
JS042
TP54
JS041
JS016
JS048
JS036
R053
C087
C086
JS035
R088
JS010
LC007
JS040
IC006
JS019
JS022
IC003
IC103
R137
R130
R136
C135
R016
R015
R082
R081
R128
C140
R012
IC104
IC105
R139
R138
Q105
C134
C136
IC106
R124
R125
JS034
C126
C127
C128
R122
R123
C131
C130
C129
R143
R144
R142
C142
C143
C133
R127
C132
L104
L102
C149
D102
D103
R119
C106
C103
C111
C113
C148
C125
C124
C112
C114
IC101
R132
L103
Q104
C119
JS045
JS050
JS051
JS052
R135
JS047
R129
IC101
C138
C139
R155
R156
R152
R153
Q102
Q103
C137
R154
R151
R140
R149
R150
R148
R146
R147
R145
R126
IC102
Q101

DV-BOARD TOP-VIEW 1/2 TNP2AA114 CT-36HL43G/UG, CT-32HL43G/UG,


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
JK001
JK002
CR NO.5000
DV1
TNP2AA114
ORDER NO.
IC001
IC003
IC006
IC101
IC102
IC103
IC104
IC105
IC106
T001
TP51
TP53
TP54
L101
L102
L103
L104
L105
D001
D002
D003
D004
D101
D102
D103
Q001
Q002
Q003
Q004
Q005
Q006
Q101
Q102
Q103
Q104
Q105
JS001
JS002
JS014
JS015
JS018
JS022
JS027
JS034
JS035
JS036
JS045
JS046
JS050
JS051
JS052
JS053
LC001
LC002
LC003
LC004
LC005
LC006
LC007
LC008
C119
C125
C132
C133
C142
C143
R137
R130
R136
R032
R151
R154
R147
R126
R127
R145
R148
R146
R149
R150
R122
R123
C131
C130
C129
R143
R144
R142
C126
C127
C128
JS020
JS023
JS021
JS017
JS009
JS028
JS007
C102
C105
C079
R068
R067
R114
R111
R117
R115
R113
R116
R110
R104
R105
R106
R107
R108
R109
R102
R103
R083
R084
R101
R007
R008
R009
L004
L006
L007
L008
L009
C014
C017
C032
C033
C034
C035
C025
C018
C015
C031
C030
C024
C036
C037
R006
C078
C088
R087
C089
R086
R085
C073
C072
C071
R080
R012
R016
R015
R082
R081
R128
C135
C140
C029
C027
JS019
R053
C087
C086
R088
R054
R029
C023
C016
D011
C044
R074
R185
R194
R189
R190
R188
R193
R062
R059
R077
C039
C041
C043
D012
R011
R010
R059
R070
R164
C149
D9028
C106
C103
C111
C113
C148
R119
C112
C114
R120
C120
C121
C118
C124
R132
Q104
R135
JS047
R129
C138
C139
R155
R156
R152
R153
C137
C136
R140
R124
R125
C134
R139
R138
17
9
1
2
1
24
25
10
20
33
34
46
47
21
7
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8
4
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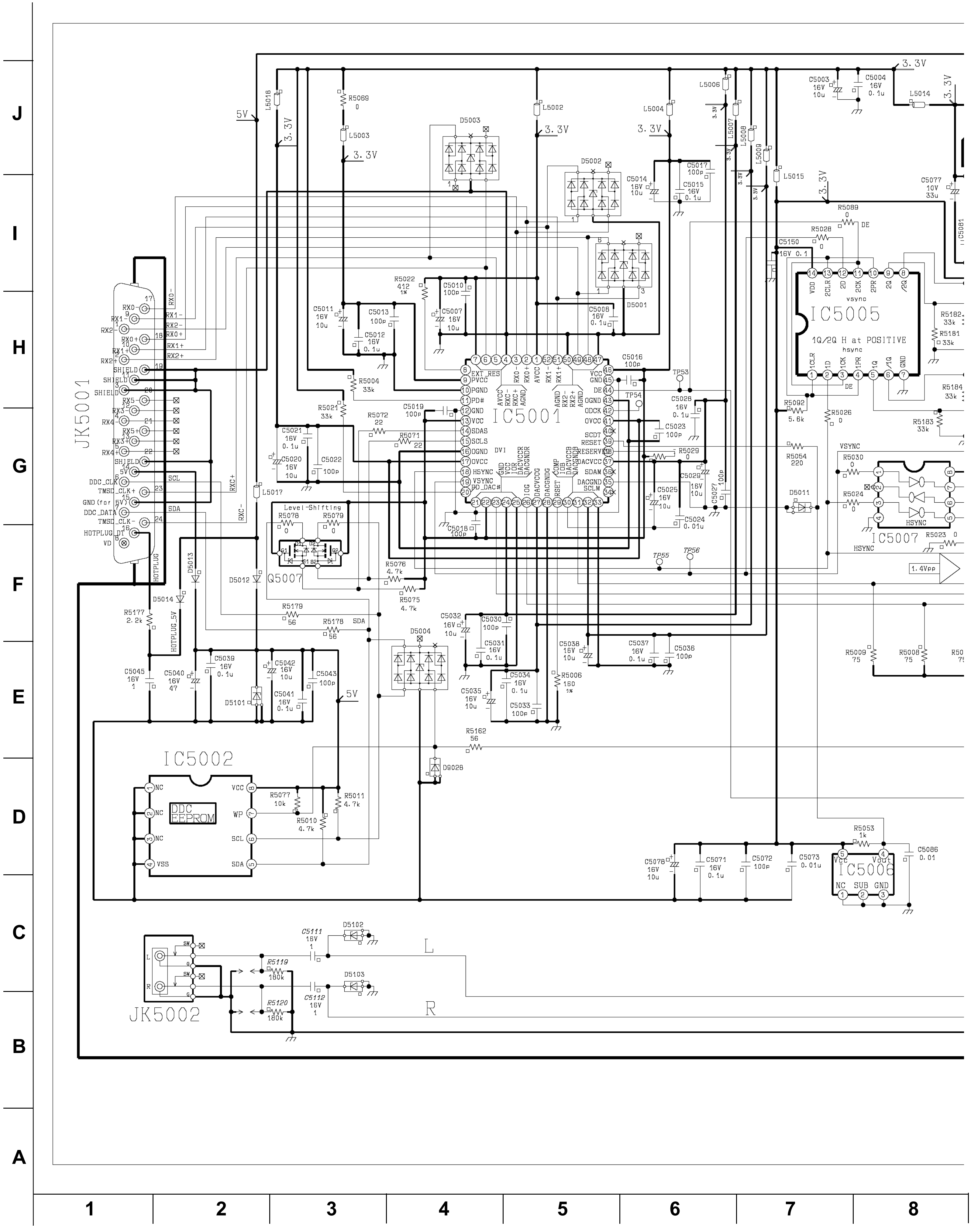
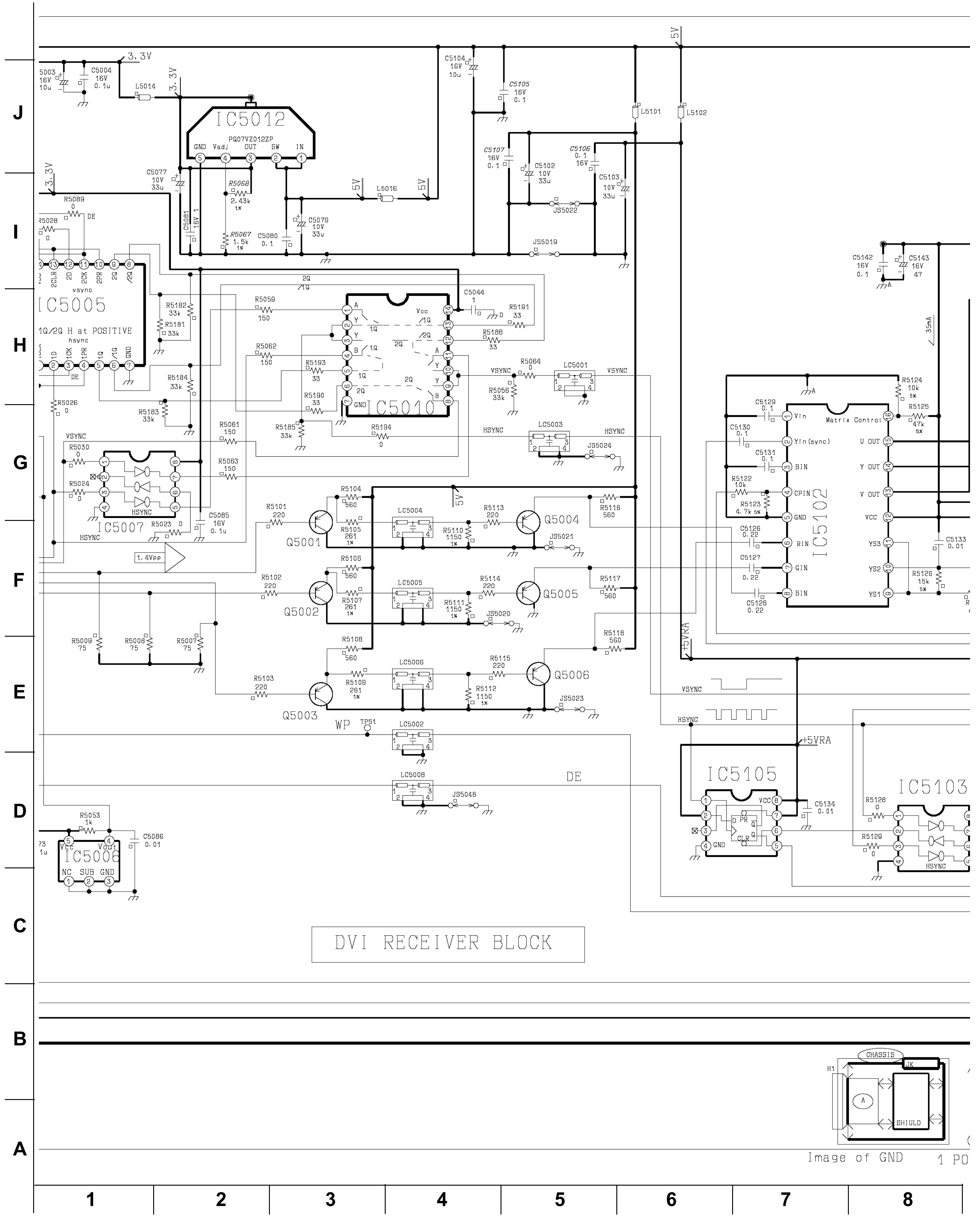
16
9

DV-BOARD TOP-VIEW 2/2 TNP2AA114 CT-36HL43G/UG, CT-32HL43G/UG,



J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
JK5001
IC5001
DVI
IC5002
DDC EEPROM
IC5005
1Q/2Q H at POSITIVE
IC5007
IC5006
JK5002
Level-Shifting
Q5007
D5001
D5002
D5003
D5004
D5011
D5012
D5013
D5014
D5101
D5102
D5103
D9026
L5002
L5003
L5004
L5006
L5007
L5008
L5009
L5014
L5015
L5017
L5018
3.3V
5V
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
RXC+
RXC-
SHIELD
DDC_CLK
DDC_DATA
TMSD_CLK+
TMSD_CLK-
GND (for 5V)
HOTPLUG_DT
HOTPLUG
HOTPLUG_5V
SCL
SDA
VSYNC
HSYNC
1.4Vpp
TP53
TP54
TP55
TP56
L
R


DVI RECEIVER BLOCK
IC5012
PQ07VZ012ZP
GND Vadj OUT SW IN
IC5005
1Q/2Q H at POSITIVE
vsync
hsync
IC5010
IC5007
IC5006
IC5102
Matrix Control
Vin
Yin(sync)
BIN
CPIN
GND
RIN
GIN
U OUT
Y OUT
V OUT
VCC
YS3
YS2
YS1
IC5105
IC5103
Q5001
Q5002
Q5003
Q5004
Q5005
Q5006
LC5001
LC5002
LC5003
LC5004
LC5005
LC5006
LC5008
L5014
L5016
L5101
L5102
JS5019
JS5020
JS5021
JS5022
JS5023
JS5024
JS5046
TP51
WP
DE
VSYNC
HSYNC
1.4Vpp
+5VRA
3.3V
5V
35mA
R5059 150
R5062 150
R5061 150
R5063 150
R5101 220
R5102 220
R5103 220
R5104 560
R5106 560
R5108 560
R5105 261 1%
R5107 261 1%
R5109 261 1%
R5110 1150 1%
R5111 1150 1%
R5112 1150 1%
R5113 220
R5114 220
R5115 220
R5116 560
R5117 560
R5118 560
R5122 10k
R5123 4.7k 5%
R5124 10k 5%
R5125 47k 5%
R5126 15k 5%
R5128 0
R5129 0
R5182 33k
R5181 33k
R5183 33k
R5184 33k
R5185 33k
R5186 33
R5190 33
R5191 33
R5193 33
R5194 0
R5064 0
R5056 33k
R5068 2.43k 1%
R5067 1.5k 1%
R5089 0
R5028 0
R5026 0
R5030 0
R5024 0
R5023 0
R5009 75
R5008 75
R5007 75
R5053 1k
C5004 16V 0.1u
C5077 10V 33u
C5081 16V 1
C5080 0.1
C5079 10V 33u
C5104 16V 10u
C5105 16V 0.1
C5107 16V 0.1
C5102 10V 33u
C5106 0.1 16V
C5103 10V 33u
C5044 1
C5085 16V 0.1u
C5086 0.01
C5142 16V 0.1
C5143 16V 47
C5129 0.1
C5130 0.1
C5131 0.1
C5126 0.22
C5127 0.22
C5128 0.22
C5133 0.01
C5134 0.01
CHASSIS
JK
H1
SHIULD
Image of GND
1 PO
A
B
C
D
E
F
G
H
I
J
1
2
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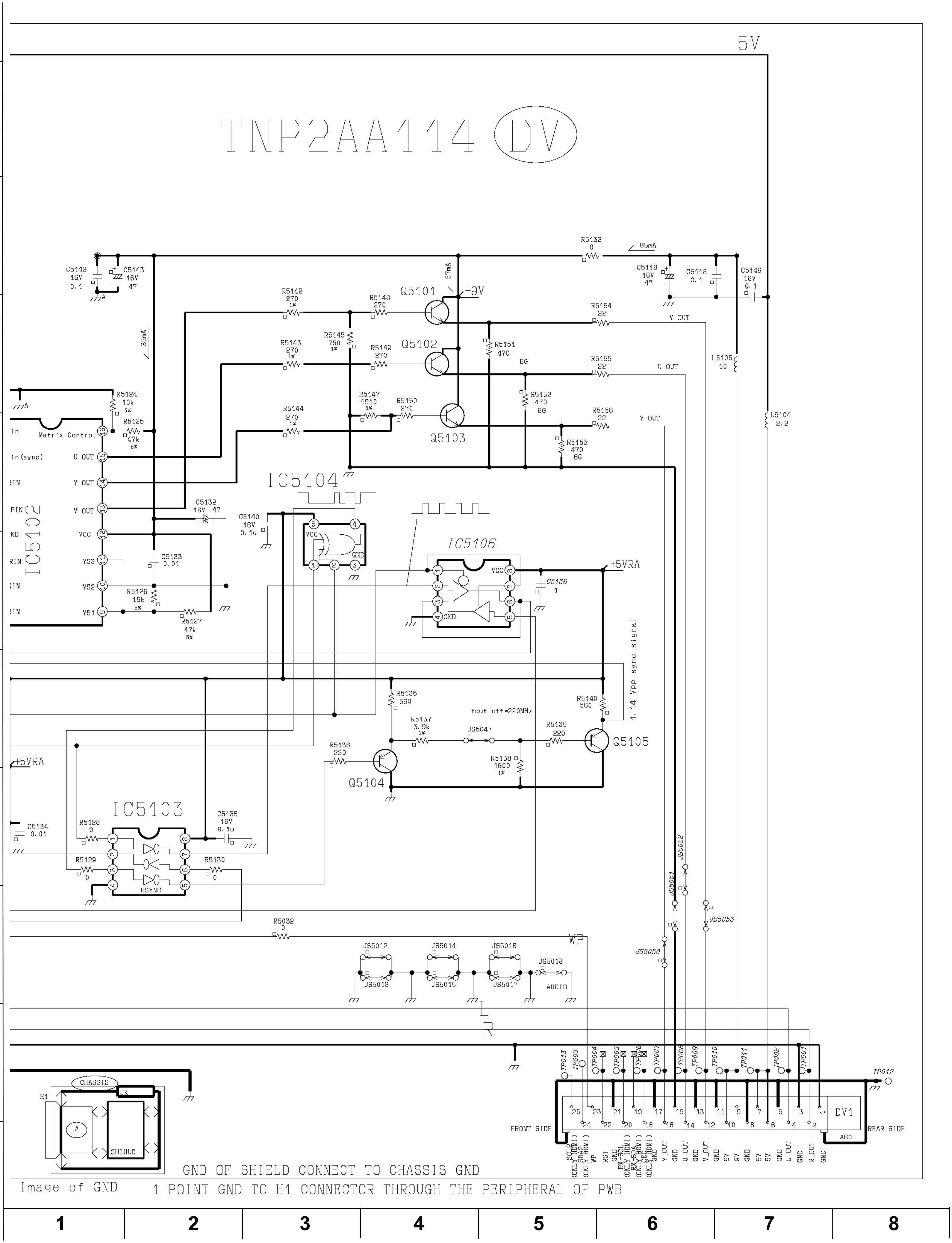
TNP2AA114 DV
5V
R5132 0
95mA
C5142 16V 0.1
C5143 16V 47
C5119 16V 47
C5118 0.1
C5149 16V 0.1
57mA
+9V
Q5101
Q5102
Q5103
Q5104
Q5105
R5142 270 1%
R5143 270 1%
R5144 270 1%
R5145 750 1%
R5147 1910 1%
R5148 270
R5149 270
R5150 270
R5151 470
R5152 470 6G
R5153 470 6G
R5154 22
R5155 22
R5156 22
V OUT
U OUT
Y OUT
6G
L5105 10
L5104 2.2
35mA
R5124 10k 5%
R5125 47k 5%
Matrix Control
In
In(sync)
U OUT
Y OUT
V OUT
VCC
YS3
YS2
YS1
IC5102
C5132 16V 47
C5133 0.01
R5126 15k 5%
R5127 47k 5%
IC5104
C5140 16V 0.1u
VCC
GND
IC5106
VCC
GND
C5136 1
+5VRA
1.14 Vpp sync signal
R5135 560
R5137 3.9k 1%
JS5047
fcut off=220MHz
R5139 220
R5140 560
R5136 220
R5138 1600 1%
+5VRA
C5134 0.01
IC5103
R5128 0
R5129 0
R5130 0
C5135 16V 0.1u
HSYNC
R5032 0
WP
JS5012
JS5013
JS5014
JS5015
JS5016
JS5017
JS5018
AUDIO
L
R
JS5050
JS5051
JS5052
JS5053
TP013
TP003
TP004
TP005
TP006
TP007
TP008
TP009
TP010
TP011
TP002
TP001
TP012
DV1
A60
FRONT SIDE
REAR SIDE
SCL2 (ONLY HDMI)
SDA2 (ONLY HDMI)
WP
RST
GND
RX_SCL (ONLY HDMI)
RX_SDA (ONLY HDMI)
CEC (ONLY HDMI)
GND
Y_OUT
GND
U_OUT
GND
V_OUT
GND
9V
9V
5V
5V
GND
L_OUT
GND
R_OUT
GND
H1
CHASSIS
JK
SHIULD
A
GND OF SHIELD CONNECT TO CHASSIS GND
Image of GND
1 POINT GND TO H1 CONNECTOR THROUGH THE PERIPHERAL OF PWB
J
I
H
G
F
E
D
C
B
A
1
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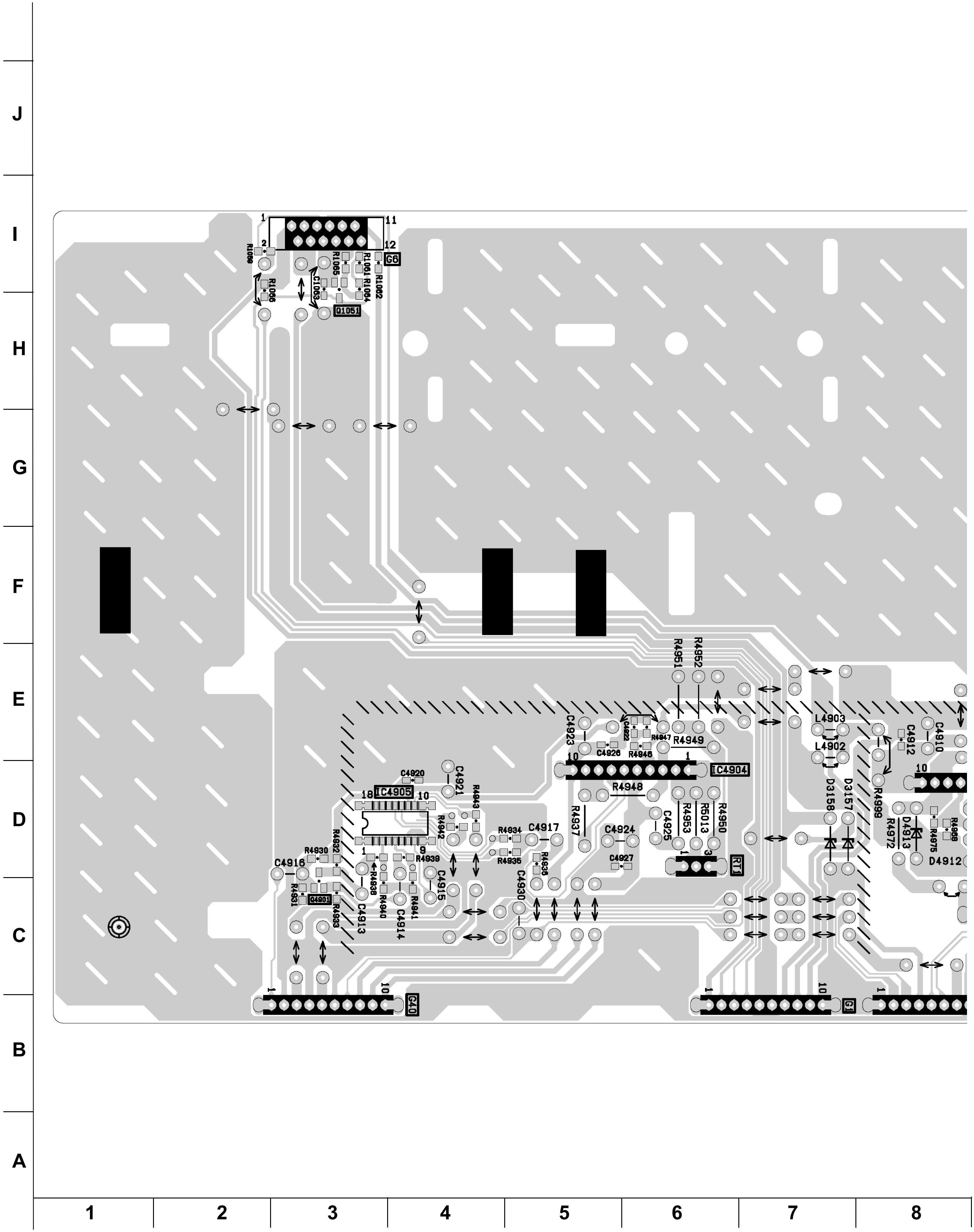
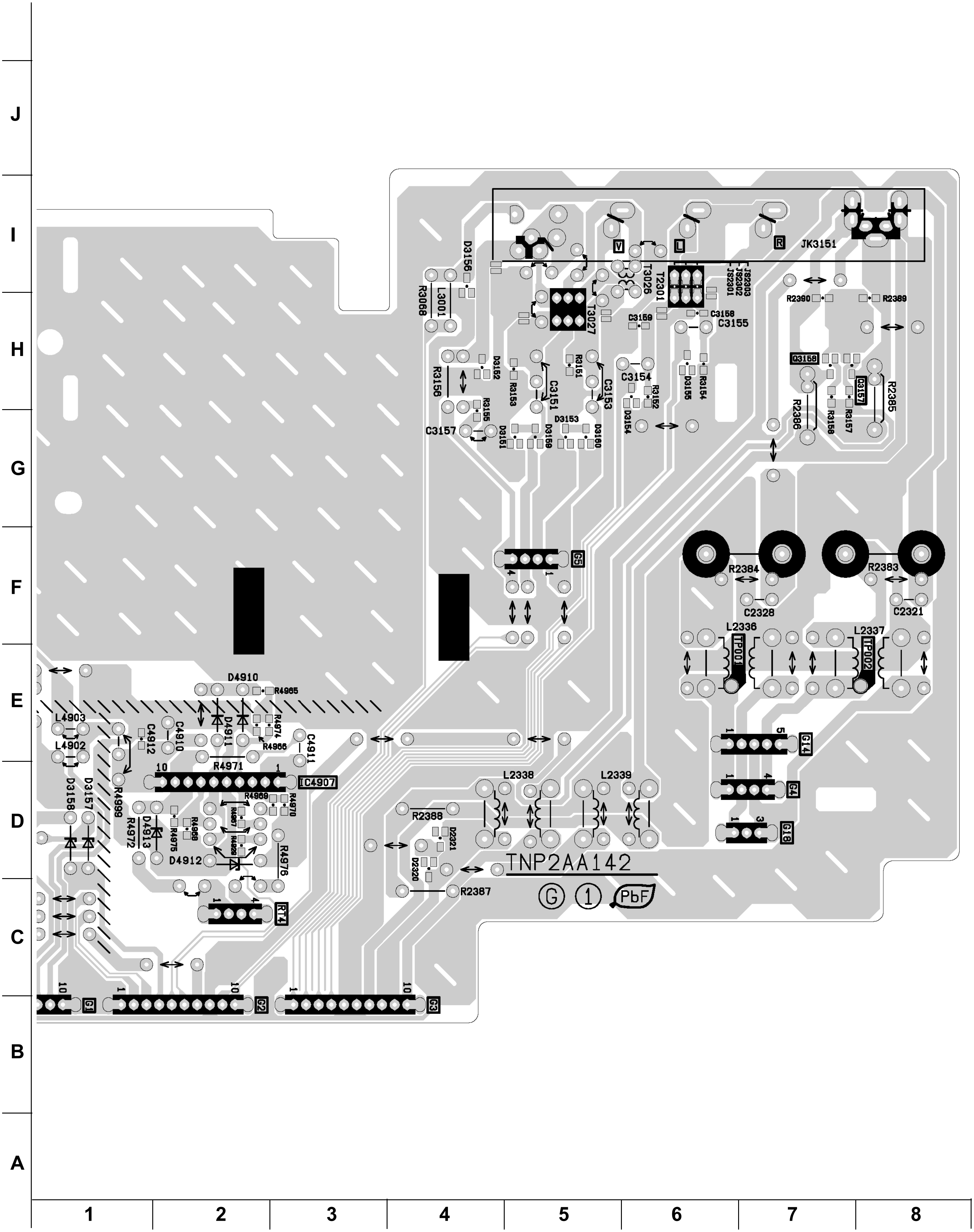

J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
1
11
2
12
R1059
R1065
R1061
R1062
G6
R1066
C1063
R1064
Q1051
R4951
R4952
C4923
C4922
R4947
R4949
L4903
C4912
C4910
C4926
R4946
L4902
10
1
IC4904
10
R4948
D3158
D3157
R4999
C4920
C4921
18
IC4905
10
R4943
R4942
R4937
C4925
R4953
R5013
R4950
R4972
D4913
R4975
R4968
R4934
C4917
C4924
R4932
R4930
1
9
R4939
R4935
R4936
C4927
1
3
RT1
D4912
C4916
R4938
C4915
C4930
R4931
Q4901
R4933
R4940
R4941
C4913
C4914
1
10
G40
1
10
G1
1

G-BOARD 1/2 TNP2AA142 CT-36HL43G/UG, CT-32HL43G/UG


J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
JK3151
V
L
R
D3156
R3068
L3001
T3026
T2301
T3027
JS2303
JS2302
JS2301
C3158
C3155
C3159
R2390
R2389
R3156
D3162
R3153
C3151
R3161
C3153
C3154
R3162
D3155
R3154
Q3158
D3157
R2385
R2386
R3158
R3157
R3155
C3157
D3151
D3159
D3153
D3160
D3154
G5
R2384
R2383
C2328
C2321
L2336
L2337
TP001
TP002
D4910
R4965
D4911
R4974
R4966
L4903
C4912
C4910
C4911
L4902
R4971
IC4907
D3158
D3157
R4999
R4972
D4913
R4975
R4968
R4967
R4969
R4970
R4976
D4912
RT4
GI4
G4
GI8
L2338
L2339
R2388
D2321
D2320
R2387
TNP2AA142
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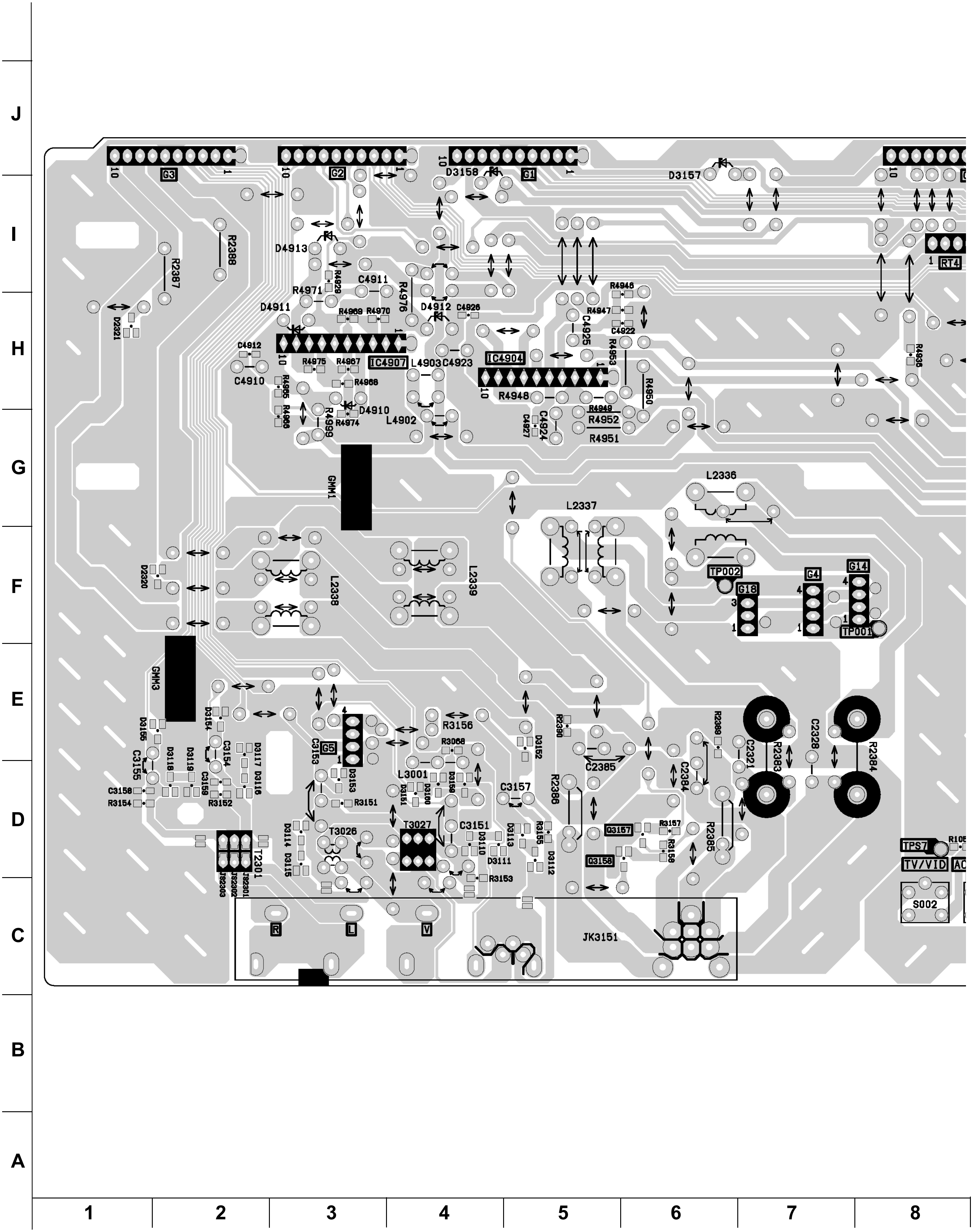
PbF
G1
G2
G3

G-BOARD 2/2 TNP2AA142 CT-36HL43G/UG, CT-32HL43G/UG



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G3
G2
G1
D3158
D3157
RT4
R2388
R2387
D4913
R4971
R4929
C4911
R4976
D4911
R4969
R4970
D4912
C4926
R4946
R4947
C4922
C4925
R4953
D2321
C4912
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R4975
R4967
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L4903
C4923
IC4904
R4936
R4965
R4968
R4966
R4999
R4974
D4910
L4902
R4948
C4927
C4924
R4949
R4952
R4951
R4950
GMM1
L2336
L2337
L2338
L2339
D2320
TP002
G18
G4
G14
TP001
GMM3
D3154
D3156
C3155
D3118
D3119
C3154
C3159
D3117
D3116
C3158
R3154
R3152
C3153
G5
R3156
R3068
D3153
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D3151
D3160
D3159
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T3027
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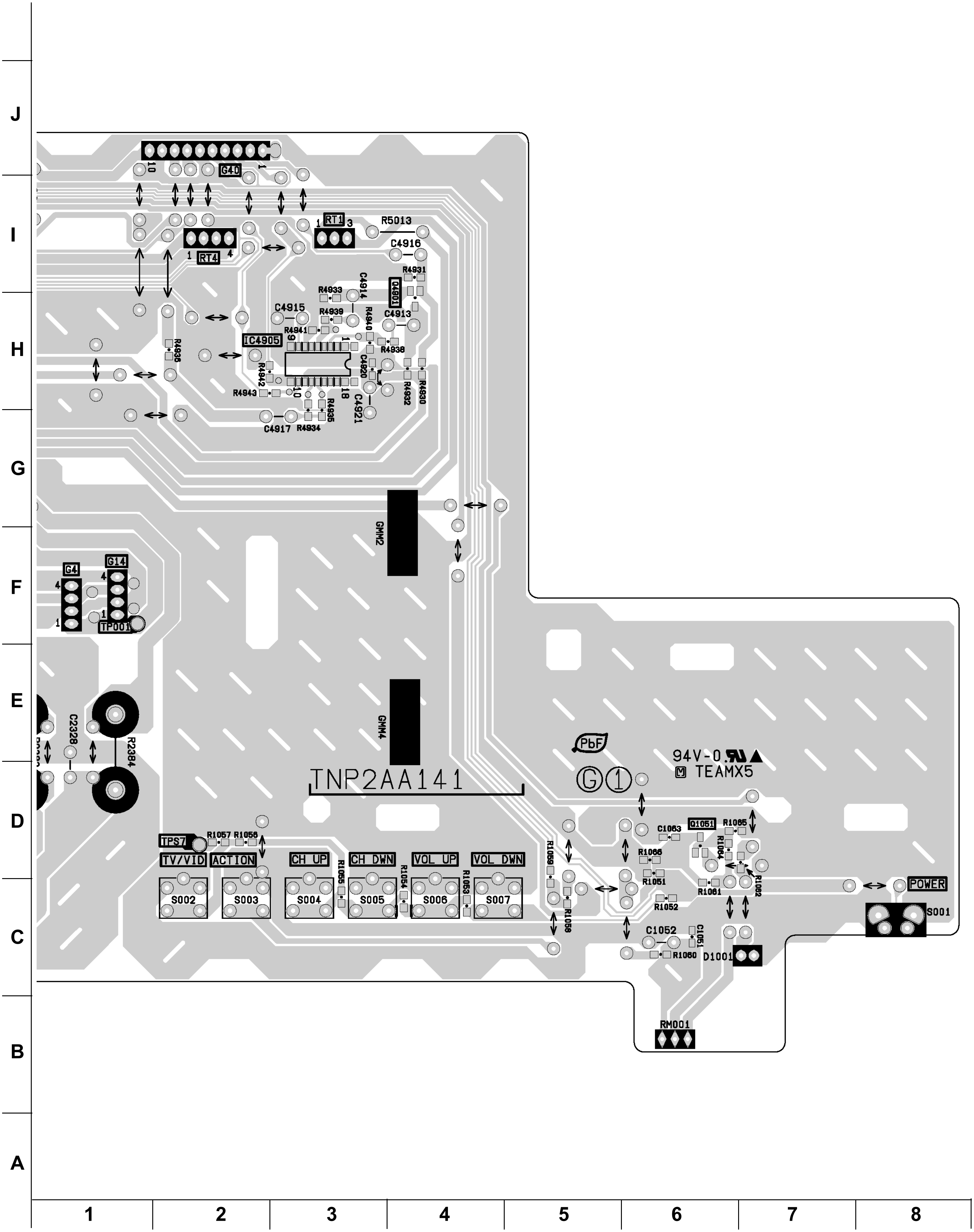
D3110
D3113
D3111
R3155
D3112
D3152
C3157
R2390
C2385
R2386
Q3157
Q3158
R3157
R3158
R2389
C2384
C2321
R2383
C2328
R2384
R2385
T2301
JK3151
R
L
V
J2303
J2302
J2301
D3114
D3115
R3153
TPS7
TV/VID
S002

G-BOARD 1/2 TNP2AA141 CT-32HXC43G/UG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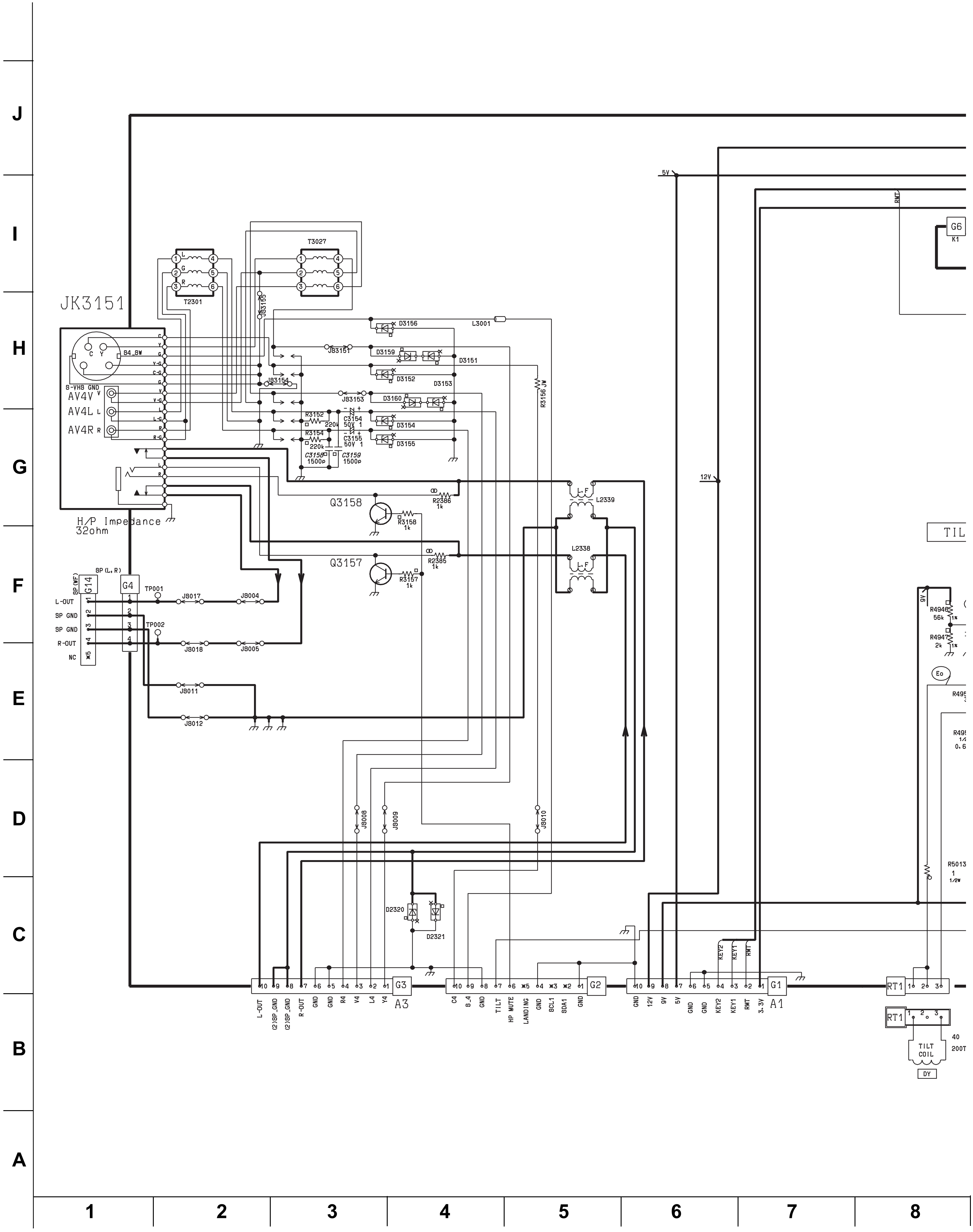
G40
RT1
R5013
C4916
RT4
R4931
Q4901
C4914
R4933
C4915
R4939
R4940
C4913
R4941
IC4905
R4938
R4936
R4942
C4920
R4932
R4930
R4943
R4935
C4921
C4917
R4934
GMM2
G4
G14
TP001
GMM4
C2328
R2384
TNP2AA141
PbF
94V-0
TEAMX5
G1
TPS7
R1057
R1056
TV/VID
ACTION
CH UP
CH DWN
VOL UP
VOL DWN
R1055
R1054
R1053
S002
S003
S004
S005
S006
S007
R1059
R1058
C1063
Q1051
R1065
R1066
R1064
R1051
R1061
R1062
POWER
R1052
S001
C1052
C1051
R1060
D1001
RM001

G-BOARD 2/2 TNP2AA141 CT-32HXC43G/UG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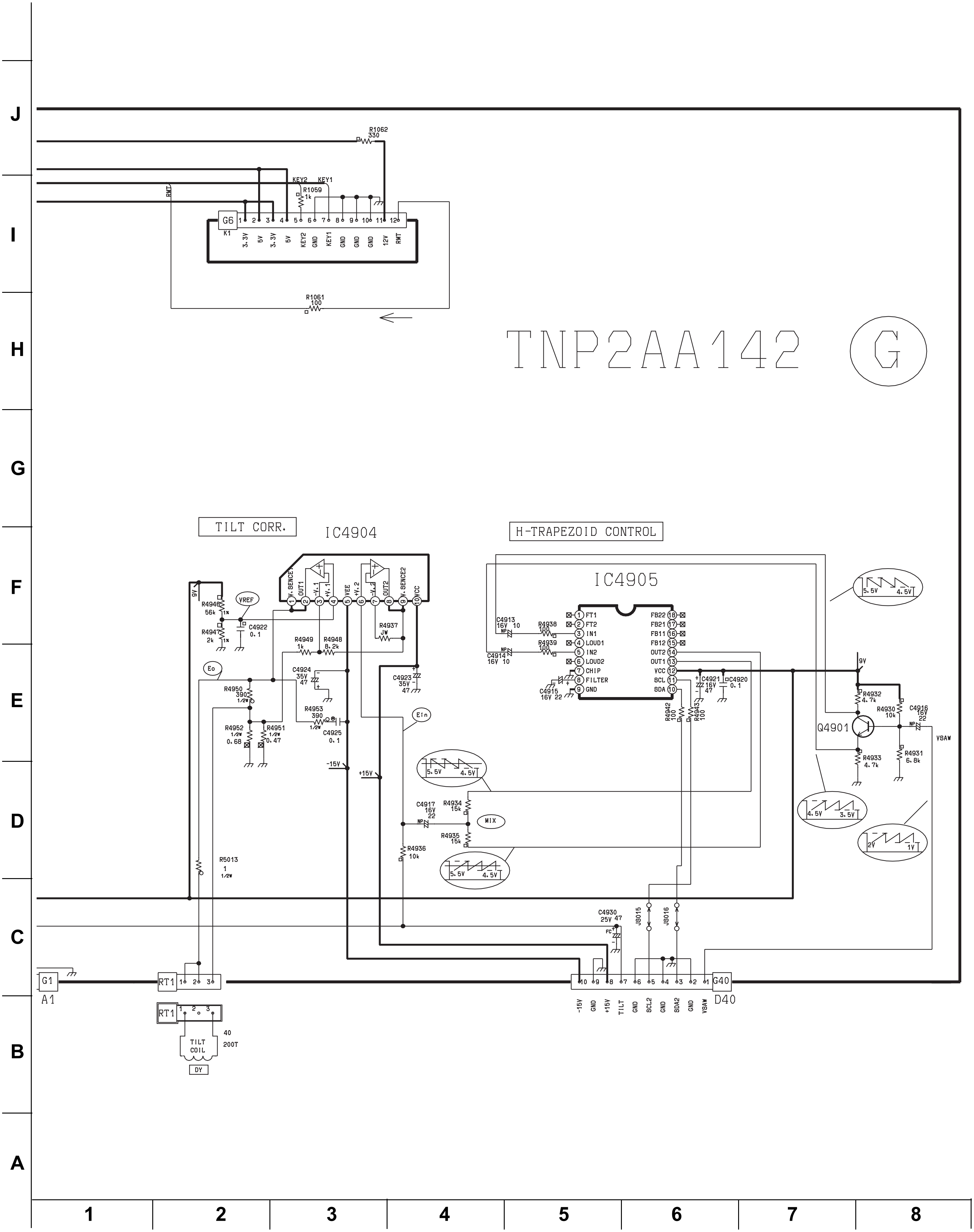
JK3151
T2301
T3027
JS3155
D3156
L3001
JS3151
D3159
D3151
D3152
JS3154
D3153
R3156 JW
JS3153
D3160
R3152
220k
C3154
50V 1
D3154
R3154
220k
C3155
50V 1
D3155
C3158
1500p
C3159
1500p
S-VHS GND
S4_SW
AV4V
AV4L
AV4R
H/P Impedance
32ohm
Q3158
R2386
1k
R3158
1k
L2339
L2338
Q3157
R2385
1k
R3157
1k
SP(WF)
G14
SP(L,R)
G4
L-OUT
SP GND
SP GND
R-OUT
NC
TP001
TP002
JS017
JS004
JS018
JS005
JS011
JS012
JS008
JS009
JS010
D2320
D2321
5V
12V
RMT
G6
K1
TIL
9V
R4946
56k
R4947
2k
Eo
R5013
1
1/2W
G3
A3
L-OUT
(2)SP_GND
(2)SP_GND
R-OUT
GND
GND
R4
V4
L4
Y4
G2
C4
B_4
GND
TILT
HP MUTE
LANDING
GND
SCL1
SDA1
GND
G1
A1
GND
12V
9V
5V
GND
GND
KEY2
KEY1
RMT
3.3V
RT1
TILT
COIL
DY
40
200T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A
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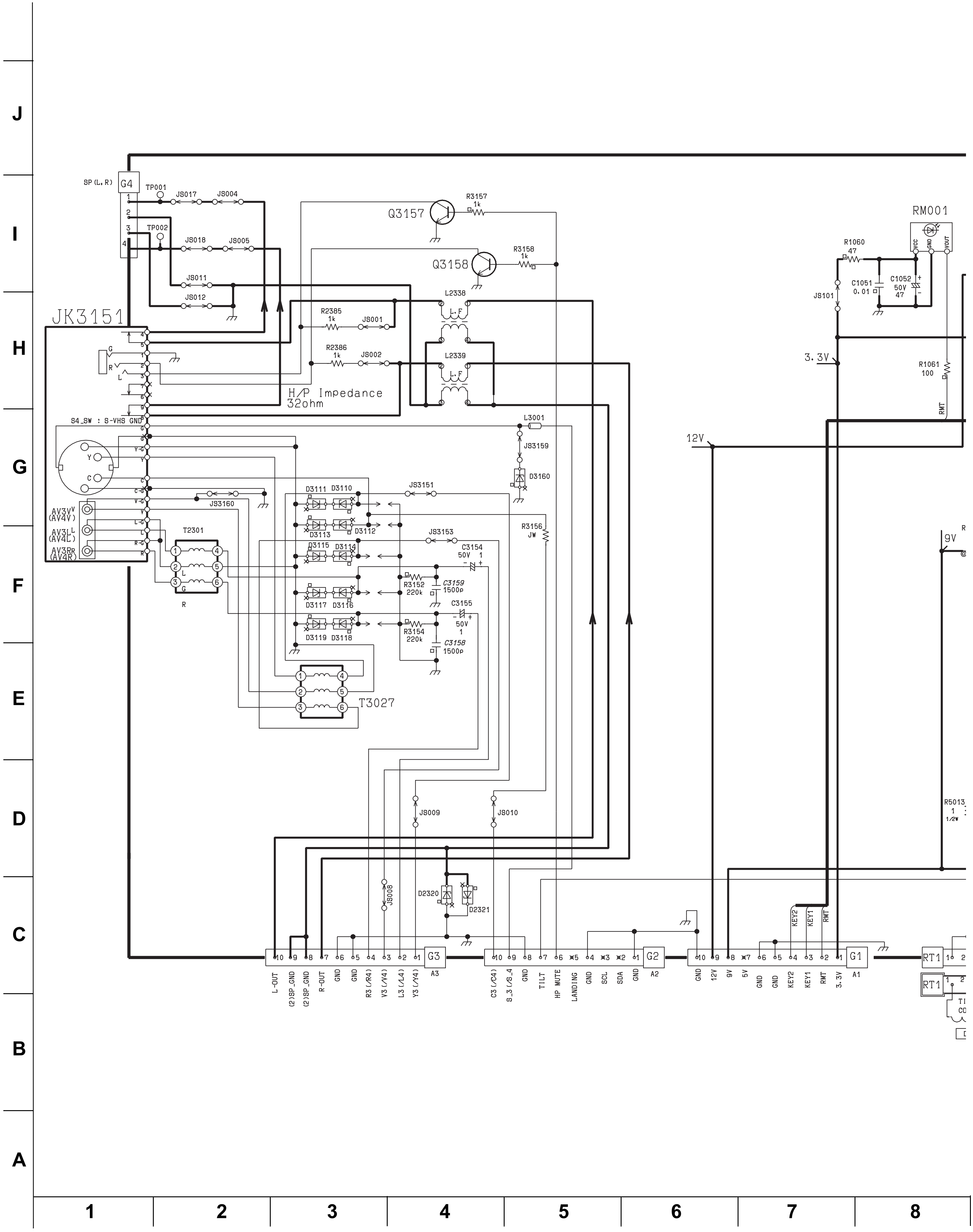
6
7
8
TNP2AA142
G
R1062 330
KEY2
KEY1
R1059 1k
RMT
G6
K1
3.3V
5V
3.3V
5V
KEY2
GND
KEY1
GND
GND
GND
12V
RMT
R1061 100
TILT CORR.
IC4904
H-TRAPEZOID CONTROL
IC4905
V.SENCE1
OUT1
-V.1
+V.1
VEE
+V.2
-V.2
OUT2
V.SENCE2
VCC
9V
R4946 56k 1%
VREF
C4922 0.1
R4947 2k 1%
R4949 1k
R4948 8.2k
R4937 JW
Eo
C4924 35V 47
C4923 35V 47
R4950 390 1/2W
R4953 390 1/2W
C4925 0.1
R4952 1/2W 0.68
R4951 1/2W 0.47
Ein
-15V
+15V
FT1
FT2
IN1
LOUD1
IN2
LOUD2
CHIP
FILTER
GND
FB22
FB21
FB11
FB12
OUT2
OUT1
VCC
SCL
SDA
C4913 16V 10 NP
R4938 100
R4939 100
C4914 16V 10 NP
C4915 16V 22
C4921 16V 47
C4920 0.1
R4942 100
R4943 100
5.5V 4.5V
R4932 4.7k
R4930 10k
C4916 16V 22 NP
Q4901
VSAW
R4933 4.7k
R4931 6.8k
4.5V 3.5V
2V 1V
C4917 16V 22 NP
R4934 15k
MIX
R4935 15k
R4936 10k
5.5V 4.5V
5.5V 4.5V
R5013 1 1/2W
C4930 25V 47 FC
JS015
JS016
G1
A1
RT1
G40
D40
-15V
GND
+15V
TILT
GND
SCL2
GND
SDA2
GND
VSAW
TILT COIL
DY
40
200T



J
I
H
G
F
E
D
C
B
A
1
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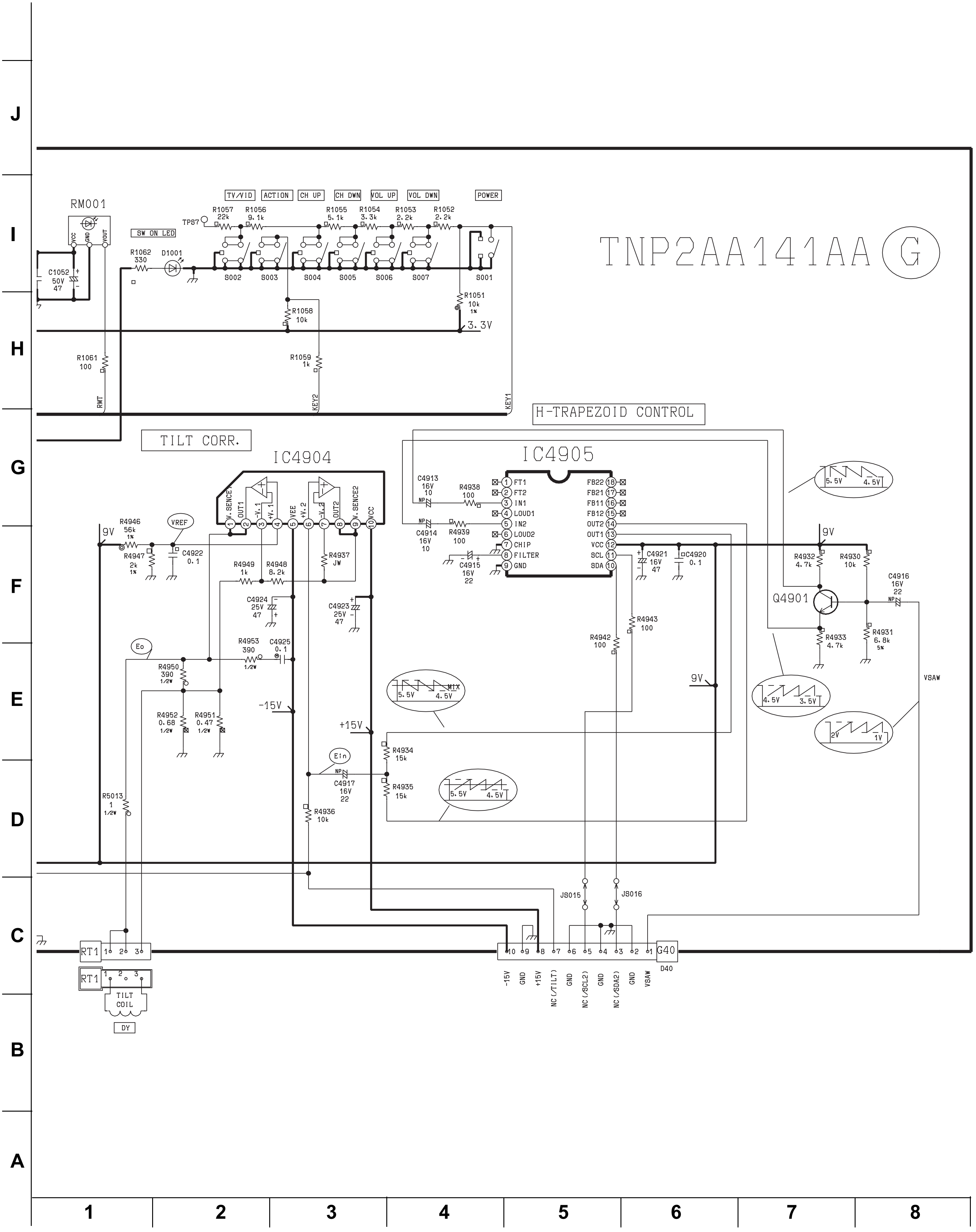
7
8
SP(L,R)
G4
TP001
TP002
JS017
JS004
JS018
JS005
JS011
JS012
Q3157
Q3158
R3157
1k
R3158
1k
L2338
L2339
L.F
R2385
1k
JS001
R2386
1k
JS002
JK3151
H/P Impedance
32ohm
S4_SW : S-VHS GND
L3001
JS3159
D3160
JS3160
D3111
D3110
D3113
D3112
JS3151
D3115
D3114
JS3153
C3154
50V
1
R3152
220k
C3159
1500p
D3117
D3116
C3155
50V
1
R3154
220k
C3158
1500p
D3119
D3118
R3156
JW
T2301
T3027
AV3V
(AV4V)
AV3L
(AV4L)
AV3R
(AV4R)
Y
C
JS009
JS010
JS008
D2320
D2321
G3
A3
L-OUT
(2)SP_GND
(2)SP_GND
R-OUT
GND
GND
R3(/R4)
V3(/V4)
L3(/L4)
Y3(/Y4)
G2
A2
C3(/C4)
S_3(/S_4
GND
TILT
HP MUTE
LANDING
GND
SCL
SDA
GND
G1
A1
GND
12V
9V
5V
GND
GND
KEY2
KEY1
RMT
3.3V
RT1
RM001
VCC
GND
VOUT
R1060
47
C1051
0.01
C1052
50V
47
JS101
3.3V
R1061
100
RMT
12V
9V
R5013
1
1/2W



TNP2AA141AA G
RM001
VCC
GND
VOUT
SW ON LED
C1052 50V 47
R1062 330
D1001
TPS7
TV/VID
ACTION
CH UP
CH DWN
VOL UP
VOL DWN
POWER
R1057 22k
R1056 9.1k
R1055 5.1k
R1054 3.3k
R1053 2.2k
R1052 2.2k
S002
S003
S004
S005
S006
S007
S001
R1051 10k 1%
R1058 10k
3.3V
R1061 100
R1059 1k
RMT
KEY2
KEY1
H-TRAPEZOID CONTROL
TILT CORR.
IC4904
V.SENCE1
OUT1
-V.1
+V.1
VEE
+V.2
-V.2
OUT2
V.SENCE2
VCC
IC4905
FT1
FT2
IN1
LOUD1
IN2
LOUD2
CHIP
FILTER
GND
FB22
FB21
FB11
FB12
OUT2
OUT1
VCC
SCL
SDA
C4913 16V 10
NP
R4938 100
C4914 16V 10
R4939 100
C4915 16V 22
C4921 16V 47
C4920 0.1
9V
R4946 56k 1%
VREF
R4947 2k 1%
C4922 0.1
R4949 1k
R4948 8.2k
R4937 JW
C4924 25V 47
C4923 25V 47
Eo
R4953 390 1/2W
C4925 0.1
R4950 390 1/2W
R4952 0.68 1/2W
R4951 0.47 1/2W
-15V
+15V
Ein
C4917 16V 22
R4934 15k
R4935 15k
R4936 10k
R5013 1 1/2W
R4943 100
R4942 100
9V
5.5V 4.5V MIX
5.5V 4.5V
5.5V 4.5V
4.5V 3.5V
2V 1V
VSAW
R4932 4.7k
R4930 10k
C4916 16V 22
Q4901
R4933 4.7k
R4931 6.8k 5%
JS015
JS016
RT1
RT1
TILT COIL
DY
G40
D40
-15V
GND
+15V
NC(/TILT)
GND
NC(/SCL2)
GND
NC(/SDA2)
GND
VSAW
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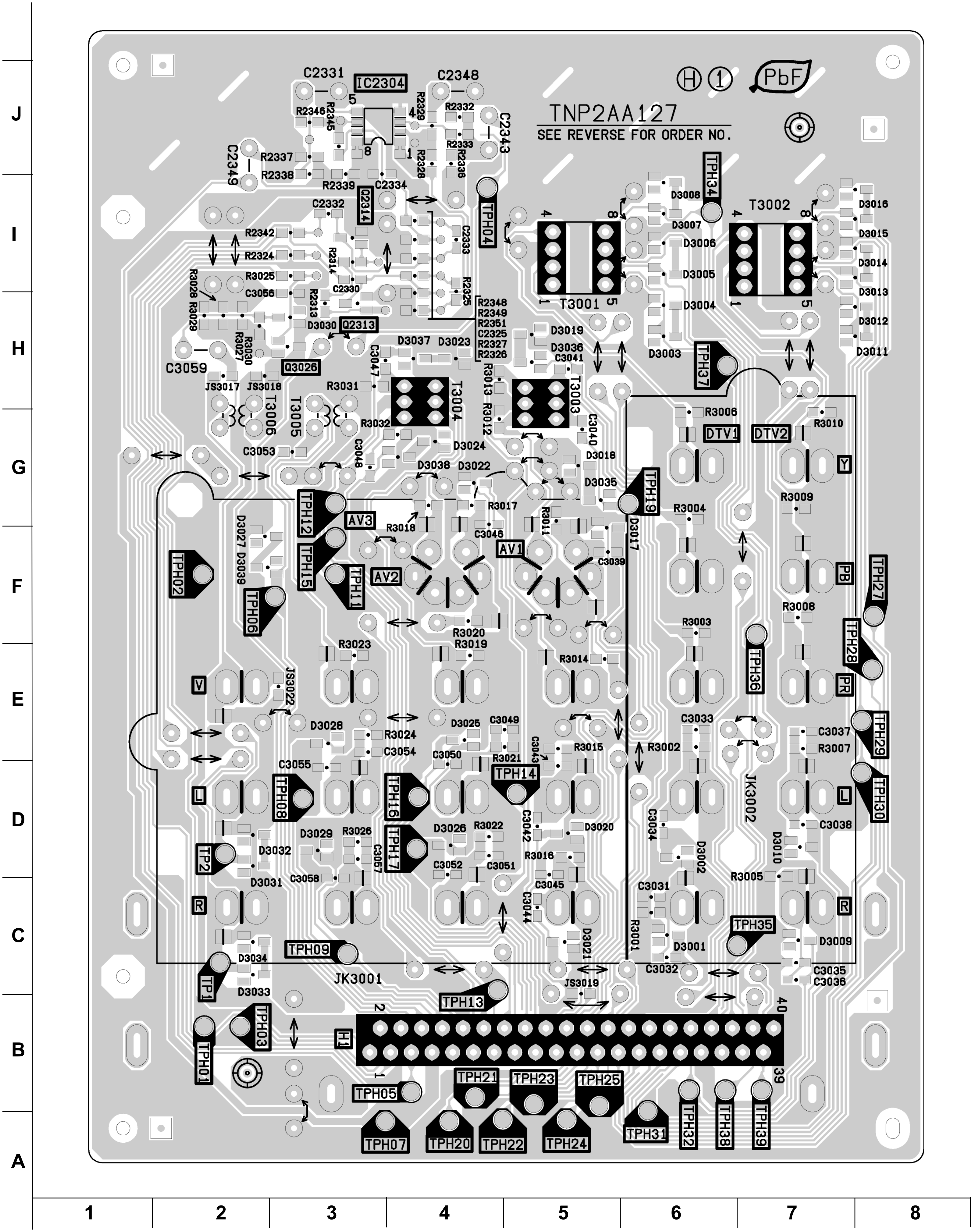
J
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8
TNP2AA127
SEE REVERSE FOR ORDER NO.
PbF
C2331
IC2304
C2348
R2346
R2345
R2329
R2332
C2343
R2333
R2336
R2328
R2337
R2338
C2349
R2339
C2334
C2332
Q2314
TPH04
R2342
R2324
R2314
R2325
C2333
R3025
C3056
R2313
C2330
R3028
R3029
D3030
Q2313
R2348
R2349
R2351
C2325
R2327
R2326
R3027
R3030
C3059
Q3026
JS3017
JS3018
T3006
T3005
R3031
C3047
D3037
D3023
R3013
R3012
T3004
T3003
D3019
D3036
C3041
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C3048
D3024
D3038
D3022
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D3035
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R3017
C3046
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D3017
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AV1
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TPH11
AV2
TPH02
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D3039
TPH06
R3020
R3019
R3023
R3014
V
JS3022
D3028
R3024
C3054
D3025
C3049
C3043
R3015
C3050
R3021
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C3055
L
TPH08
TPH16
TPH17
C3042
D3020
D3029
R3026
C3057
D3026
R3022
D3032
TP2
D3031
C3058
C3052
C3051
R3016
C3045
C3044
R
D3021
TPH09
D3034
JK3001
TP1
D3033
TPH13
JS3019
TPH03
H1
TPH01
TPH05
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TPH38
TPH39
TPH34
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D3007
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D3005
D3004
D3003
T3001
T3002
D3016
D3015
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D3013
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D3011
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DTV2
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R3009
PB
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R3008
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TPH28
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C3037
R3007
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JK3002
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D3010
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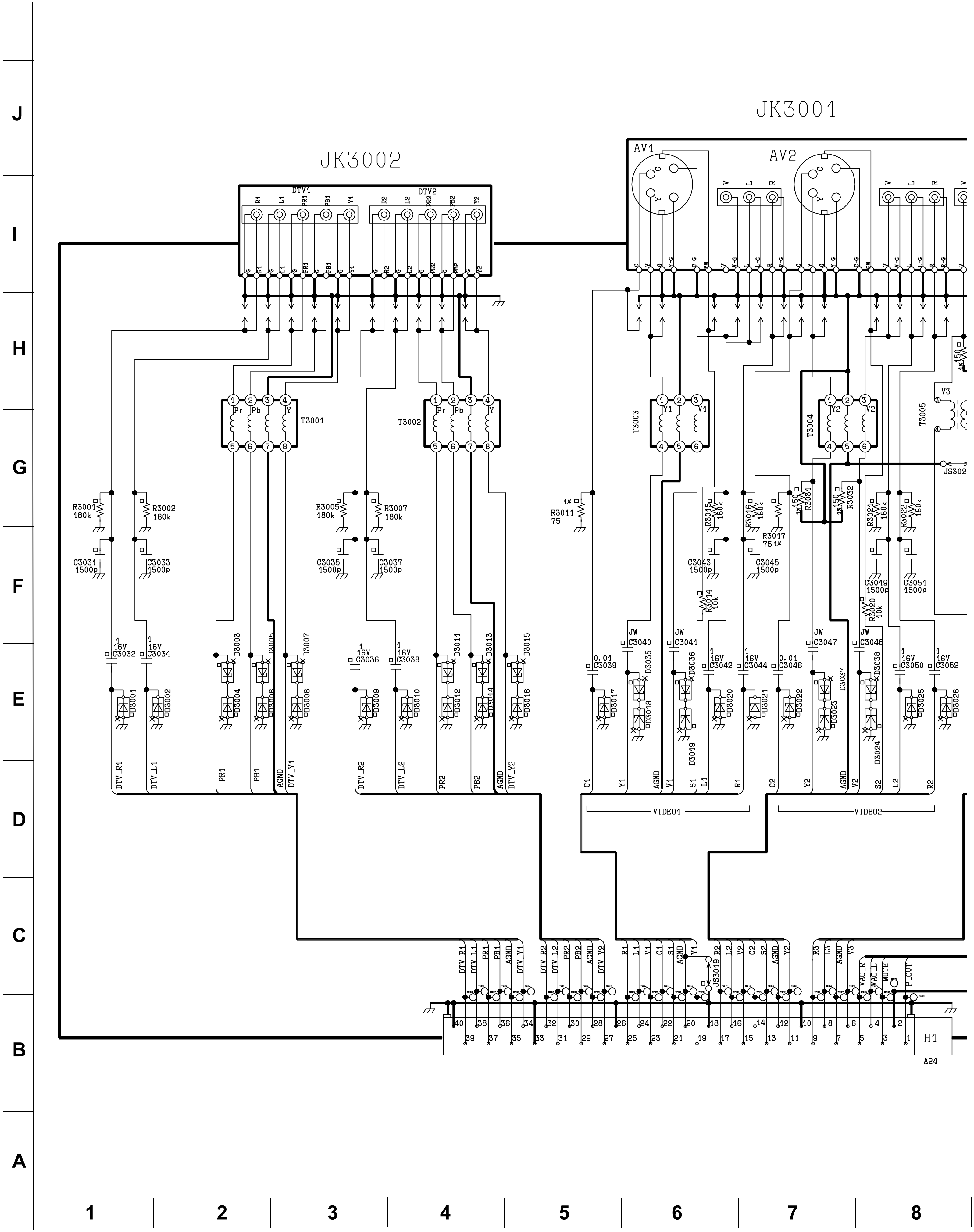
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JK3002
JK3001
DTV1
DTV2
R1
L1
PR1
PB1
Y1
R2
L2
PR2
PB2
Y2
AV1
AV2
C
Y
V
L
R
Y-G
C-G
SW
V-G
L-G
R-G
G
T3001
T3002
T3003
T3004
T3005
V3
Pr
Pb
Y
Y1
V1
Y2
V2
JS302
R3001 180k
R3002 180k
R3005 180k
R3007 180k
R3011 75
R3015 180k
R3016 180k
R3017 75
R3014 10k
R3031 150
R3032 150
R3021 180k
R3022 180k
R3020 10k
150
C3031 1500p
C3033 1500p
C3035 1500p
C3037 1500p
C3043 1500p
C3045 1500p
C3049 1500p
C3051 1500p
C3032 1 16V
C3034 1 16V
C3036 1 16V
C3038 1 16V
C3039 0.01
C3040 JW
C3041 JW
C3042 1 16V
C3044 1 16V
C3046 0.01
C3047 JW
C3048 JW
C3050 1 16V
C3052 1 16V
D3001
D3002
D3003
D3004
D3005
D3006
D3007
D3008
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D3010
D3011
D3012
D3013
D3014
D3015
D3016
D3017
D3018
D3019
D3020
D3021
D3022
D3023
D3024
D3025
D3026
D3035
D3036
D3037
D3038
DTV_R1
DTV_L1
PR1
PB1
AGND
DTV_Y1
DTV_R2
DTV_L2
PR2
PB2
DTV_Y2
C1
Y1
V1
S1
L1
R1
C2
Y2
V2
S2
L2
R2
VIDEO1
VIDEO2
R3
L3
V3
VAO_R
VAO_L
MUTE
P_OUT
JS3019
H1
A24
1
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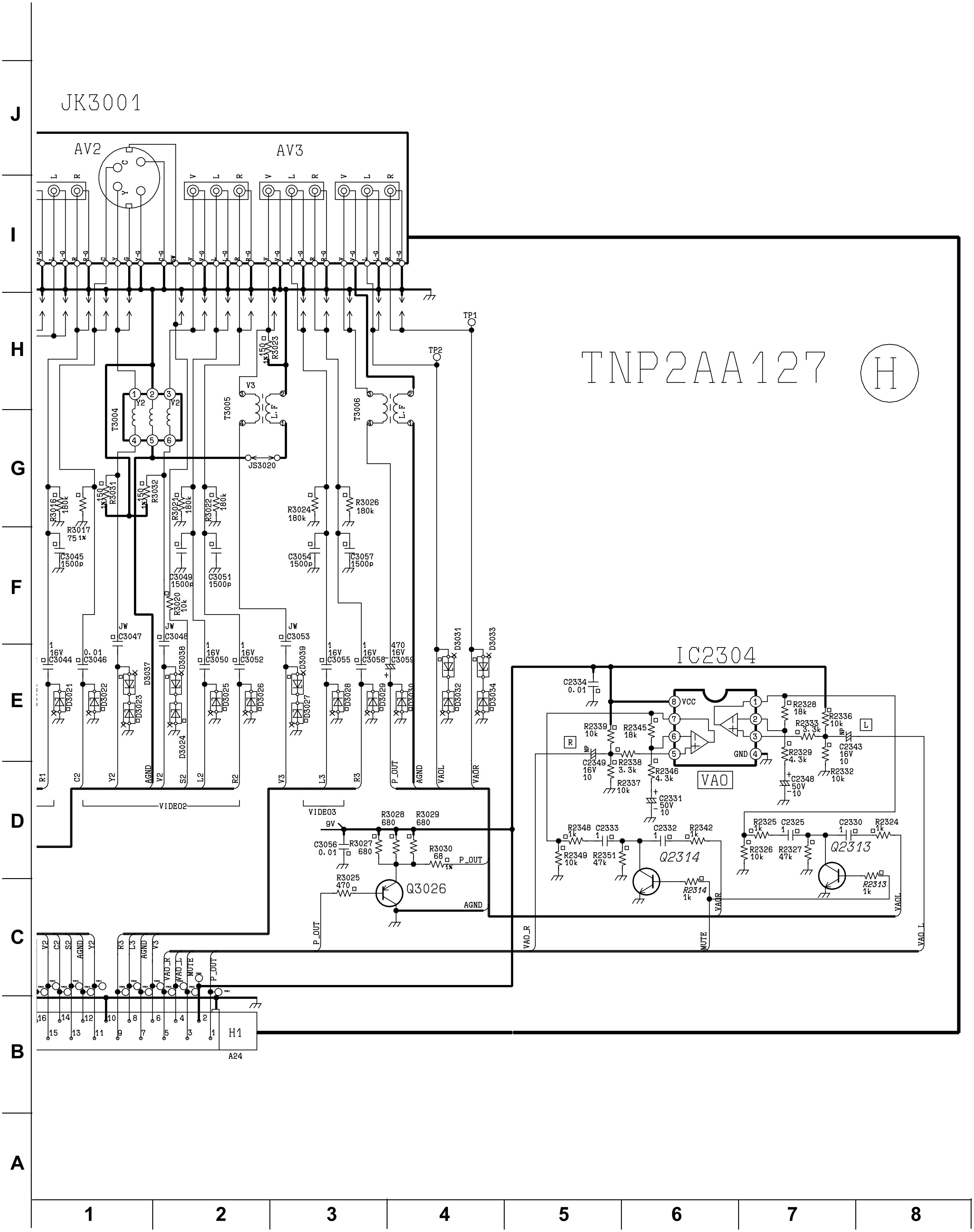
H-BOARD 1/2 TNP2AA127 CT-36HL43G/UG, CT-32HL43G/UG



JK3001
AV2
AV3
TNP2AA127
H
TP1
TP2
T3004
Y2
V2
T3005
V3
L.F
T3006
JS3020
R3023 150 1%
R3016 180k
R3017 75 1%
R3031 150 1%
R3032 150 1%
R3021 180k
R3022 180k
R3024 180k
R3026 180k
C3045 1500p
C3049 1500p
C3051 1500p
C3054 1500p
C3057 1500p
R3020 10k
C3044 1 16V
C3046 0.01
C3047 JW
C3048 JW
C3050 1 16V
C3052 1 16V
C3053 JW
C3055 1 16V
C3058 1 16V
C3059 470 16V
D3021
D3022
D3023
D3037
D3038
D3024
D3025
D3026
D3039
D3027
D3028
D3029
D3030
D3031
D3032
D3033
D3034
R1
C2
Y2
AGND
V2
S2
L2
R2
VIDEO2
V3
L3
R3
VIDEO3
P_OUT
AGND
VAOL
VAOR
IC2304
C2334 0.01
VCC
GND
VAO
R
L
R2339 10k
R2345 18k
C2349 16V 10
R2338 3.3k
R2337 10k
R2346 4.3k
C2331 50V 10
R2328 18k
R2333 3.3k
R2336 10k
C2343 16V 10
R2329 4.3k
R2332 10k
C2348 50V 10
9V
C3056 0.01
R3027 680
R3028 680
R3029 680
R3030 68 1%
R3025 470
Q3026
P_OUT
AGND
R2348 1k
C2333 1
C2332 1
R2342 1k
R2349 10k
R2351 47k
Q2314
R2314 1k
R2325 1k
C2325 1
C2330 1
R2324 1k
R2326 10k
R2327 47k
Q2313
R2313 1k
VAOR
VAOL
VAO_R
VAO_L
MUTE
H1
A24
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D
C
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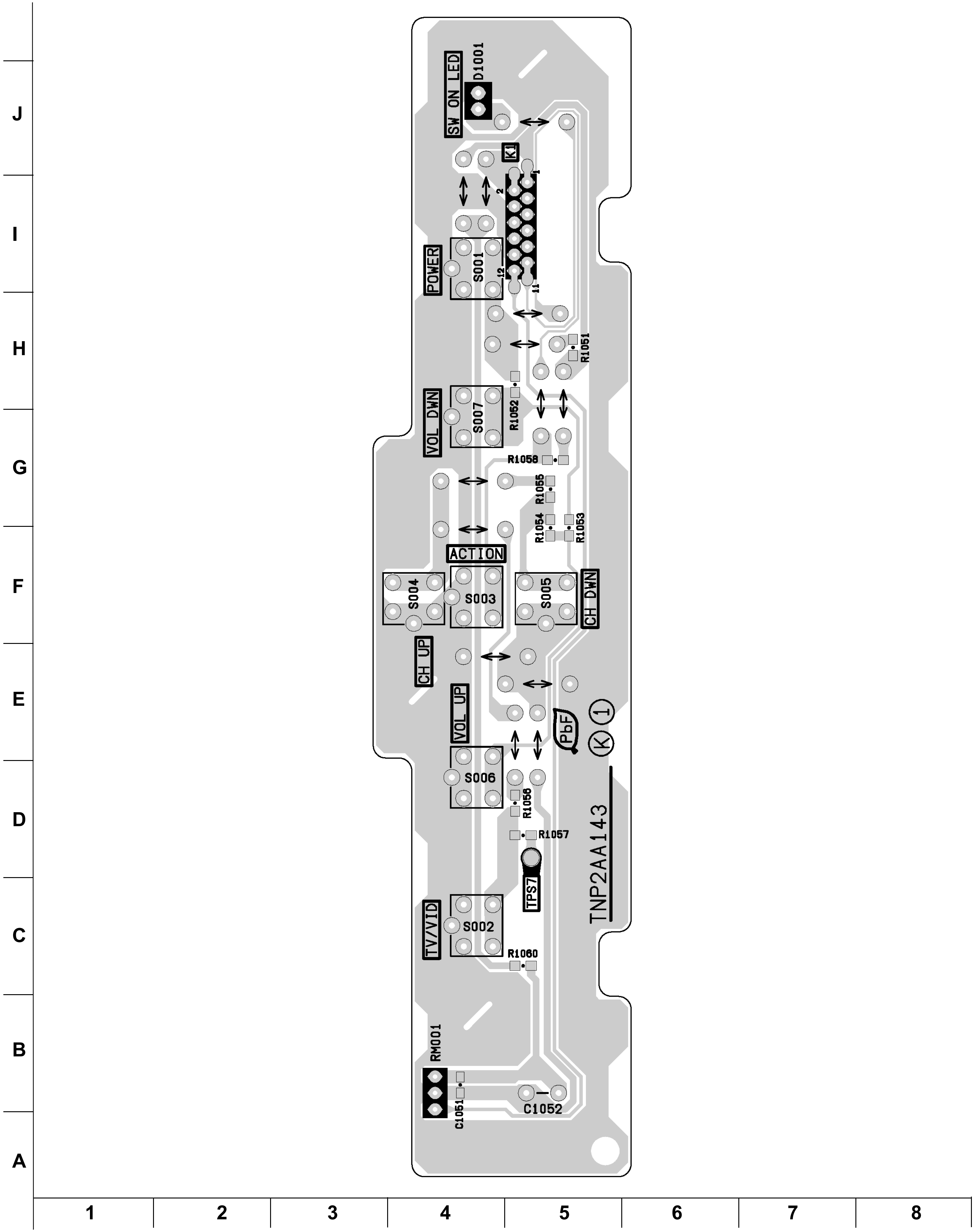
J
I
H
G
F
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D
C
B
A
1
2
3
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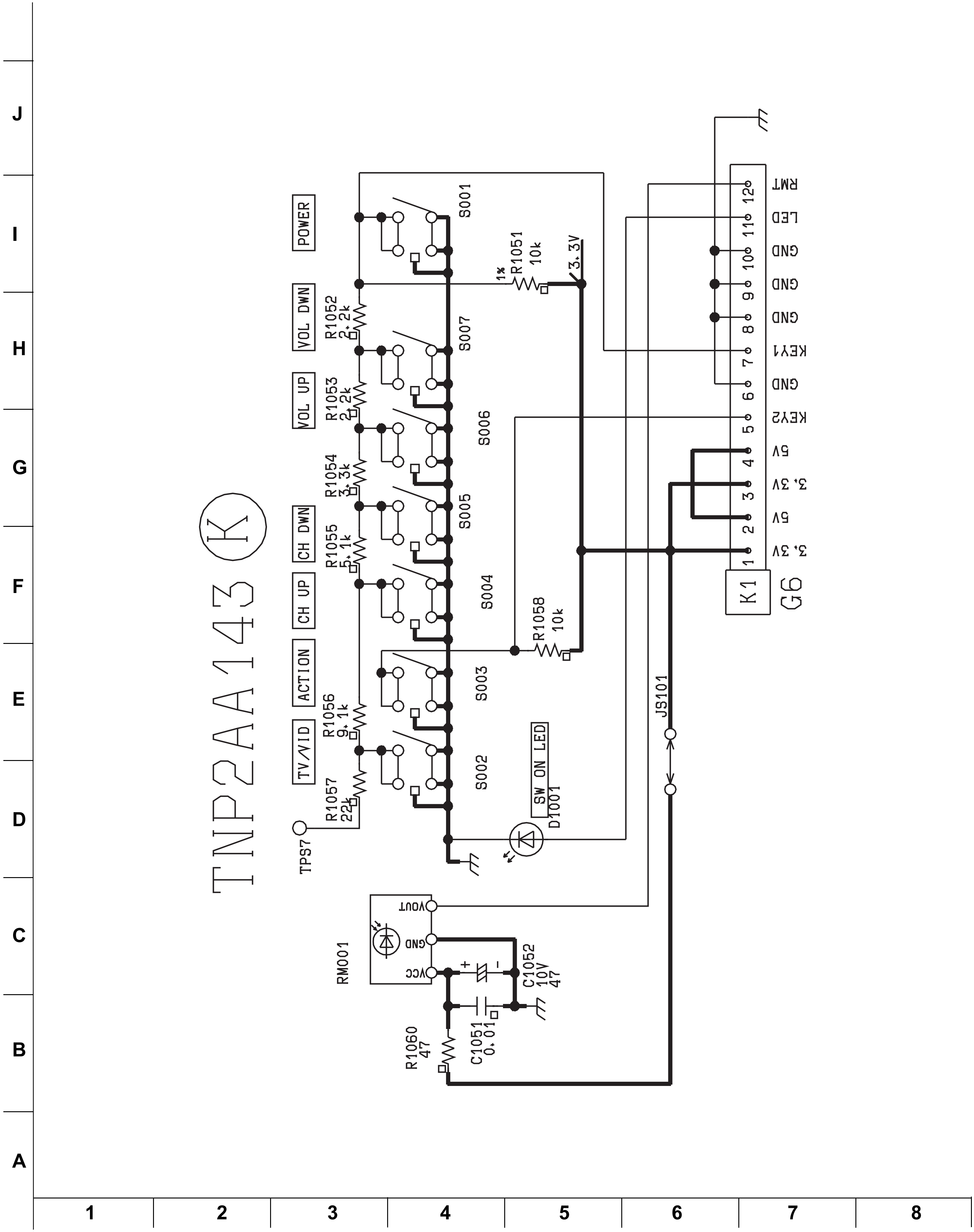
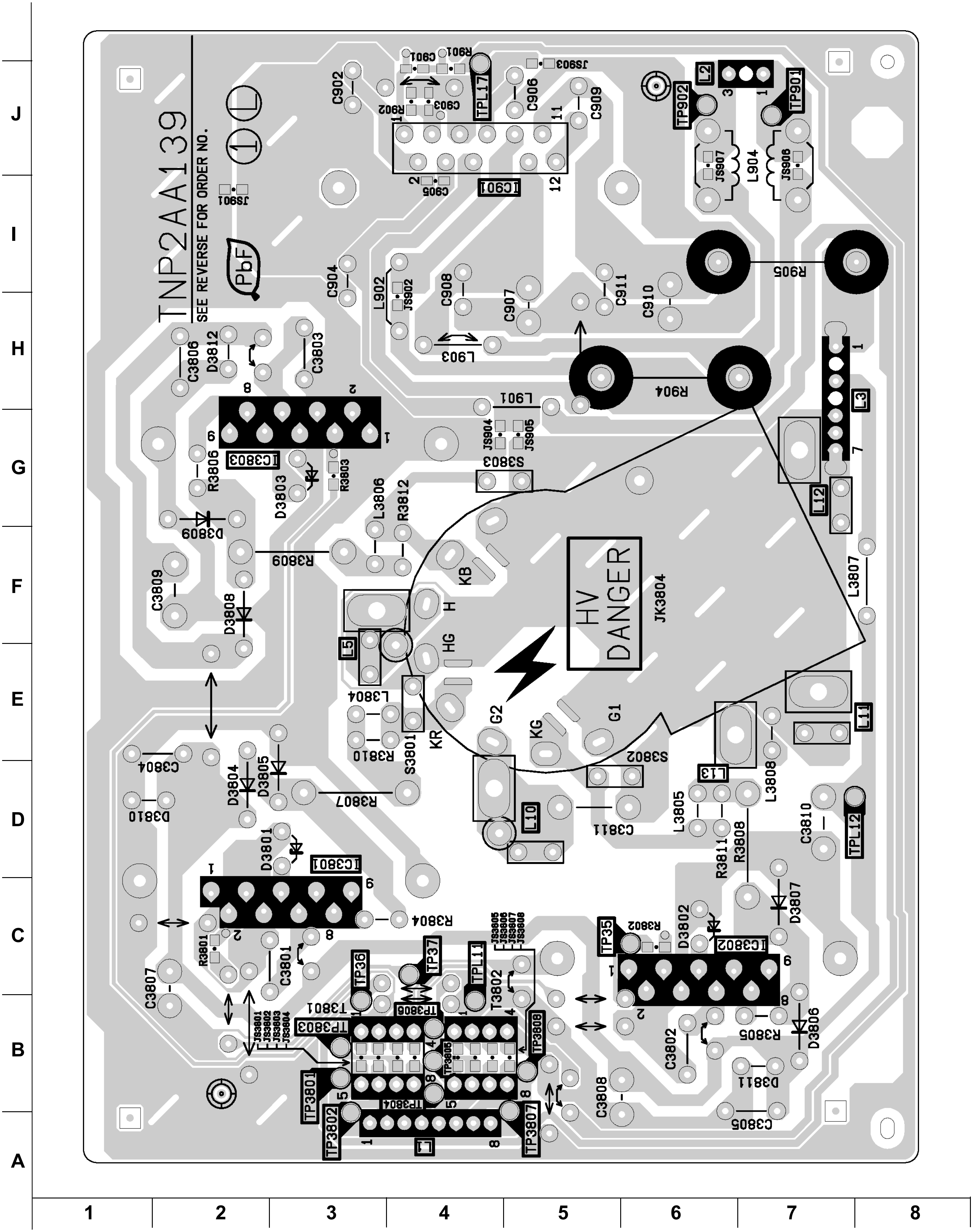
6
7
8
SW ON LED
D1001
K1
1
2
12
11
POWER
S001
R1051
VOL DWN
S007
R1052
R1058
R1055
R1054
R1053
ACTION
S004
S003
S005
CH DWN
CH UP
VOL UP
PbF
K
①
S006
R1056
R1057
TNP2AA143
TPS7
TV/VID
S002
R1060
RM001
C1051
C1052

K-BOARD TNP2AA143 CT-36HL43G/UG, CT-32HL43G/UG


TNP2AA143 K
POWER
VOL DWN
VOL UP
CH DWN
CH UP
ACTION
TV/VID
SW ON LED
S001
S007
S006
S005
S004
S003
S002
R1051 10k 1%
R1052 2.2k
R1053 2.2k
R1054 3.3k
R1055 5.1k
R1056 9.1k
R1057 22k
R1058 10k
R1060 47
C1051 0.01
C1052 10V 47
D1001
RM001
VOUT
GND
VCC
TPS7
JS101
3.3V
K1
G6
1 3.3V
2 5V
3 3.3V
4 5V
5 KEY2
6 GND
7 KEY1
8 GND
9 GND
10 GND
11 LED
12 RMT
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
8


TNP2AA139
SEE REVERSE FOR ORDER NO.
1L
PbF
HV DANGER
JK3804
IC901
IC3801
IC3802
IC3803
R901
R902
R904
R905
R3801
R3802
R3803
R3804
R3805
R3806
R3807
R3808
R3809
R3810
R3811
R3812
C901
C902
C903
C904
C905
C906
C907
C908
C909
C910
C911
C3801
C3802
C3803
C3804
C3805
C3806
C3807
C3808
C3809
C3810
C3811
D3801
D3802
D3803
D3804
D3805
D3806
D3807
D3808
D3809
D3810
D3811
D3812
L1
L2
L3
L5
L10
L11
L12
L13
L901
L902
L903
L904
L3804
L3805
L3806
L3807
L3808
JS901
JS902
JS903
JS904
JS905
JS906
JS907
JS3801
JS3802
JS3803
JS3804
JS3805
JS3806
JS3807
JS3808
S3801
S3802
S3803
T3801
T3802
TP35
TP36
TP37
TP901
TP902
TP3801
TP3802
TP3803
TP3804
TP3805
TP3806
TP3807
TP3808
TPL11
TPL12
TPL17
KB
H
HG
G2
KG
G1
KR
J
I
H
G
F
E
D
C
B
A
1
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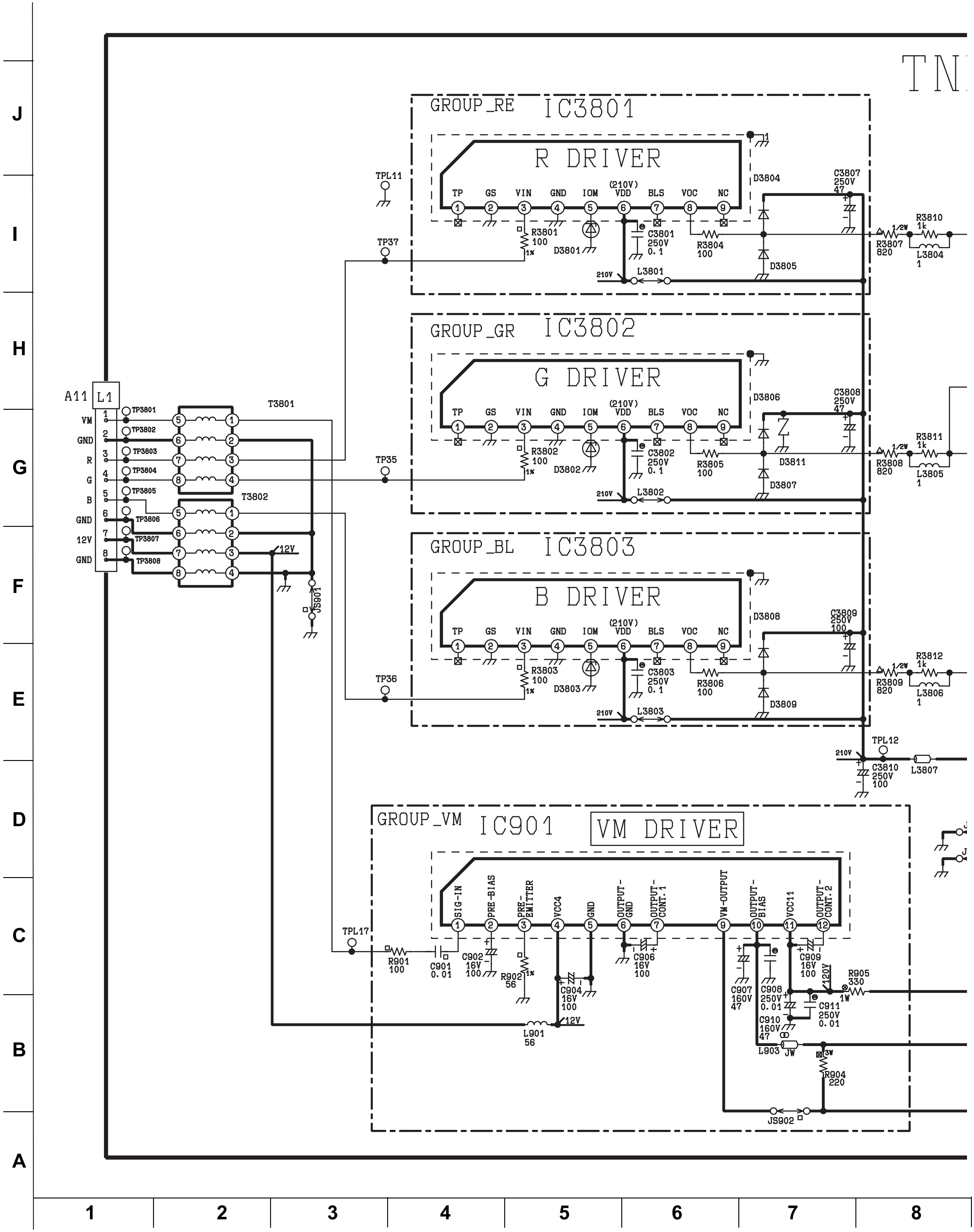
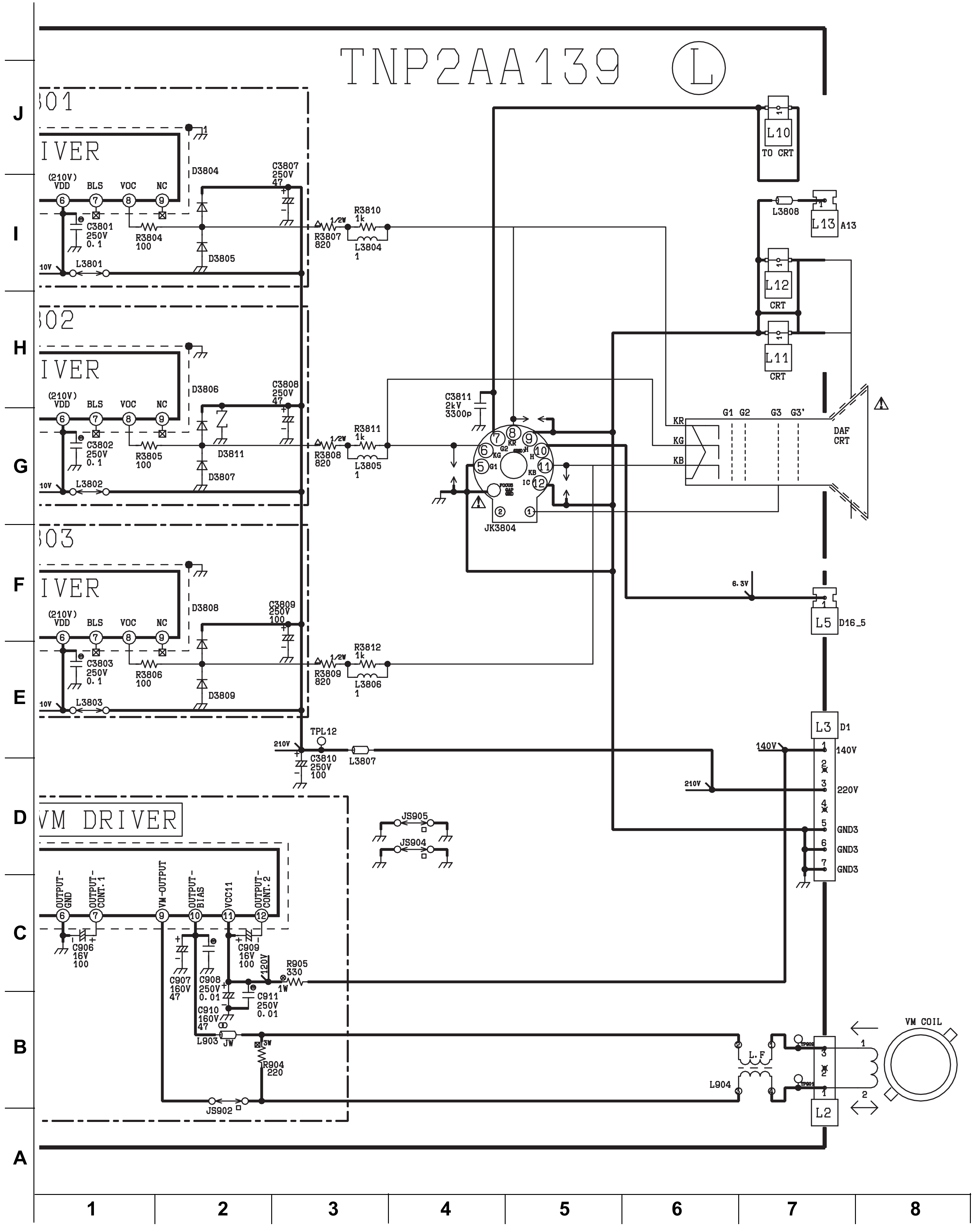
L-BOARD **TNP2A139** **CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG**


TN
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
GROUP_RE
IC3801
R DRIVER
TP
GS
VIN
GND
IOM
(210V)
VDD
BLS
VOC
NC
1
2
3
4
5
6
7
8
9
TPL11
TP37
R3801
100
1%
D3801
C3801
250V
0.1
R3804
100
210V
L3801
D3804
D3805
C3807
250V
47
R3807
820
1/2W
R3810
1k
L3804
1
GROUP_GR
IC3802
G DRIVER
TP35
R3802
100
1%
D3802
C3802
250V
0.1
R3805
100
L3802
D3806
D3811
D3807
C3808
250V
47
R3808
820
R3811
1k
L3805
1
GROUP_BL
IC3803
B DRIVER
TP36
R3803
100
1%
D3803
C3803
250V
0.1
R3806
100
L3803
D3808
D3809
C3809
250V
100
R3809
820
R3812
1k
L3806
1
TPL12
C3810
250V
100
L3807
A11
L1
VM
GND
R
G
B
GND
12V
GND
TP3801
TP3802
TP3803
TP3804
TP3805
TP3806
TP3807
TP3808
T3801
T3802
12V
JS901
GROUP_VM
IC901
VM DRIVER
SIG-IN
PRE-BIAS
PRE-EMITTER
VCC4
GND
OUTPUT-GND
OUTPUT-CONT.1
VM-OUTPUT
OUTPUT-BIAS
VCC11
OUTPUT-CONT.2
10
11
12
TPL17
R901
100
C901
0.01
C902
16V
100
R902
56
1%
C904
16V
100
L901
56
12V
C906
16V
100
C907
160V
47
C908
250V
0.01
C910
160V
47
C909
16V
100
120V
R905
330
1W
C911
250V
0.01
L903
JW
3W
R904
220
JS902



TNP2AA139 (L)
J
I
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C
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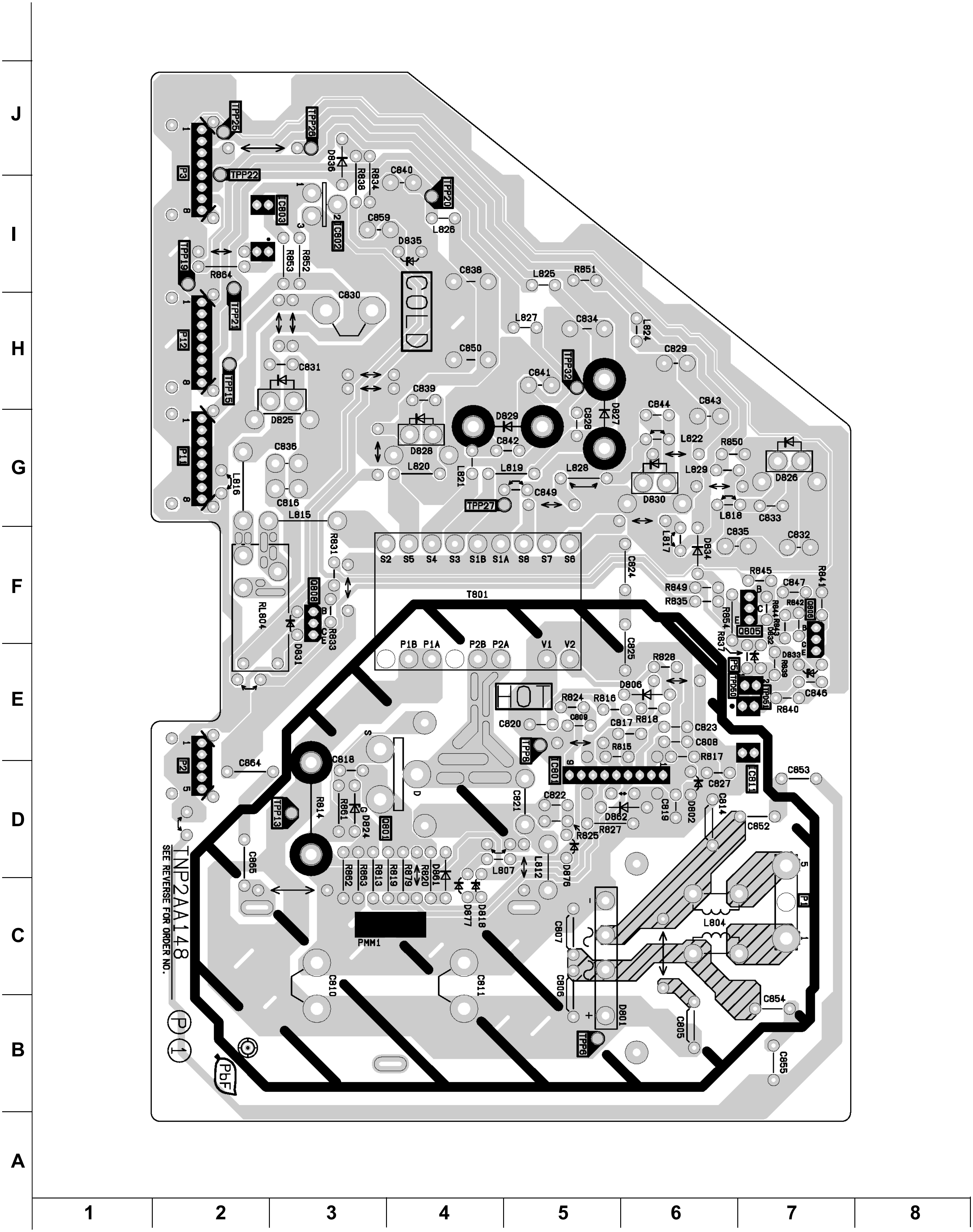
7
8
IVER
(210V)
VDD
BLS
VOC
NC
D3804
C3807
250V
47
C3801
250V
0.1
R3804
100
D3805
L3801
R3807
820
1/2W
R3810
1k
L3804
1
D3806
C3808
250V
47
C3802
250V
0.1
R3805
100
D3811
D3807
L3802
R3808
820
R3811
1k
L3805
1
D3808
C3809
250V
100
C3803
250V
0.1
R3806
100
D3809
L3803
R3809
820
R3812
1k
L3806
1
210V
TPL12
C3810
250V
100
L3807
VM DRIVER
OUTPUT-GND
OUTPUT-CONT.1
VM-OUTPUT
OUTPUT-BIAS
VCC11
OUTPUT-CONT.2
C906
16V
100
C907
160V
47
C908
250V
0.01
C909
16V
100
120V
R905
330
1W
C910
160V
47
C911
250V
0.01
L903
JW
3W
R904
220
JS902
JS905
JS904
C3811
2kV
3300p
JK3804
G1
KG
G2
KR
H
KB
IC
FOCUS GAP GND
L10
TO CRT
L3808
L13
A13
L12
CRT
L11
CRT
KR
KG
KB
G1
G2
G3
G3'
DAF
CRT
6.3V
L5
D16_5
L3
D1
140V
140V
220V
210V
GND3
GND3
GND3
L.F
L904
TP902
TP901
L2
VM COIL

L-BOARD 2/2 TNP2A139 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



J
I
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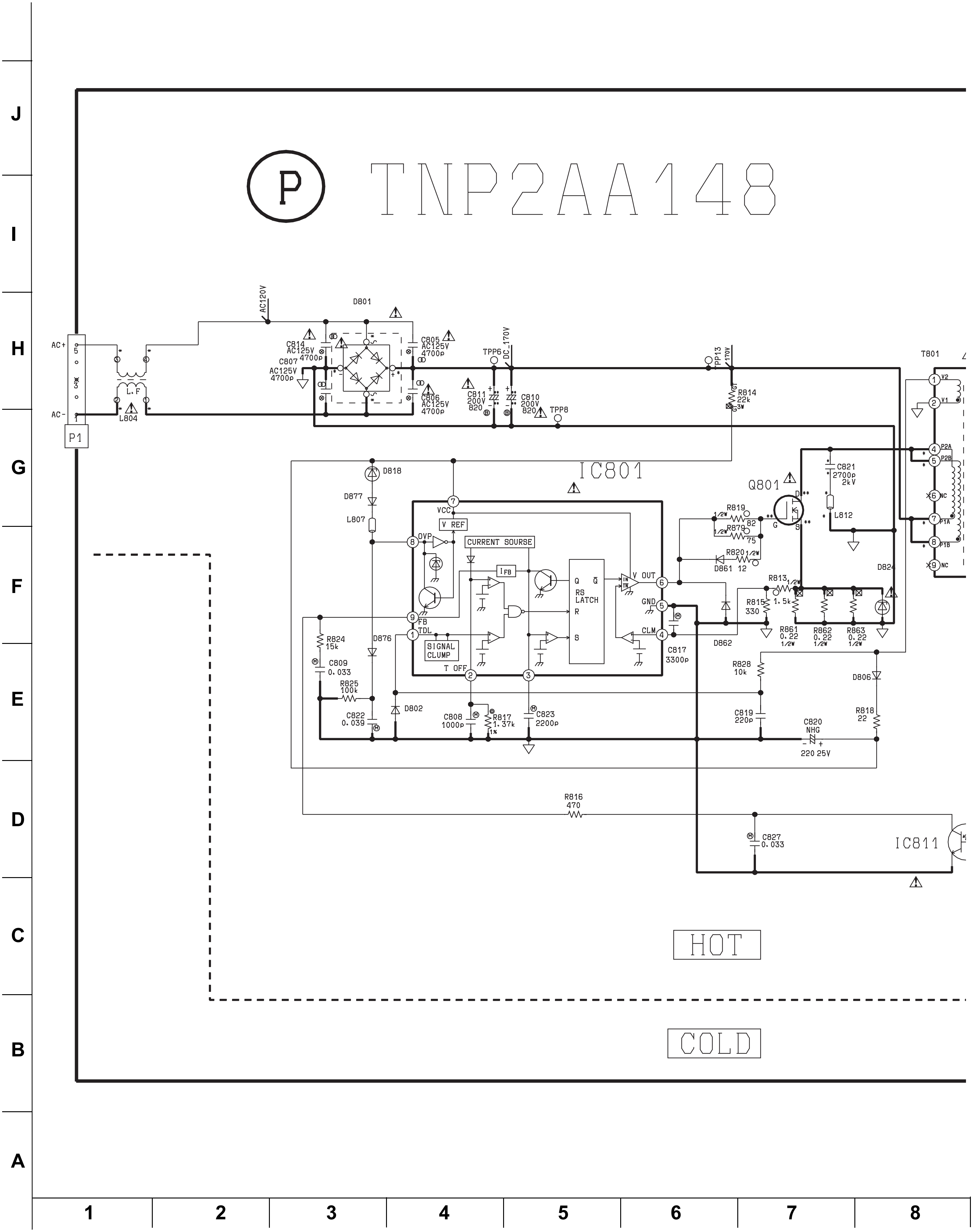
TPP25
TPP28
TPP22
TPP20
TPP19
TPP21
TPP15
TPP32
TPP27
TPP8
TPP13
TPP6
TPP60
TPP61
P3
P12
P11
P2
P5
P1
IC803
IC802
IC801
IC811
D836
R838
R834
C840
C859
L826
D835
R853
R852
R864
COLD
C838
L825
R851
C830
L827
C834
L824
C829
C850
C831
C841
C839
D825
D828
D829
C842
D827
C828
C844
C843
L822
R850
D826
C836
L816
L820
L821
L819
L828
L829
D830
C816
C849
L818
C833
L815
C835
C832
L817
D834
R831
S2
S5
S4
S3
S1B
S1A
S8
S7
S6
T801
C824
R845
C847
R841
R849
R835
R854
Q805
R844
R843
R842
Q806
D832
R837
D833
R839
C846
R840
Q808
RL804
D831
R833
P1B
P1A
P2B
P2A
V1
V2
C825
R828
D806
HOT
R824
R816
R818
C809
C820
C817
C823
R815
C808
R817
C818
C864
R814
C821
C822
C827
C853
C819
D802
C814
D862
R825
R827
C852
R861
D824
Q801
C865
R862
R863
R813
R819
R879
R820
D861
D877
D818
L807
L812
D876
L804
C807
C806
D801
C805
C854
C855
PMM1
C810
C811
TNP2AA148
SEE REVERSE FOR ORDER NO.
P1
PbF

P-BOARD TNP2AA148 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG


J
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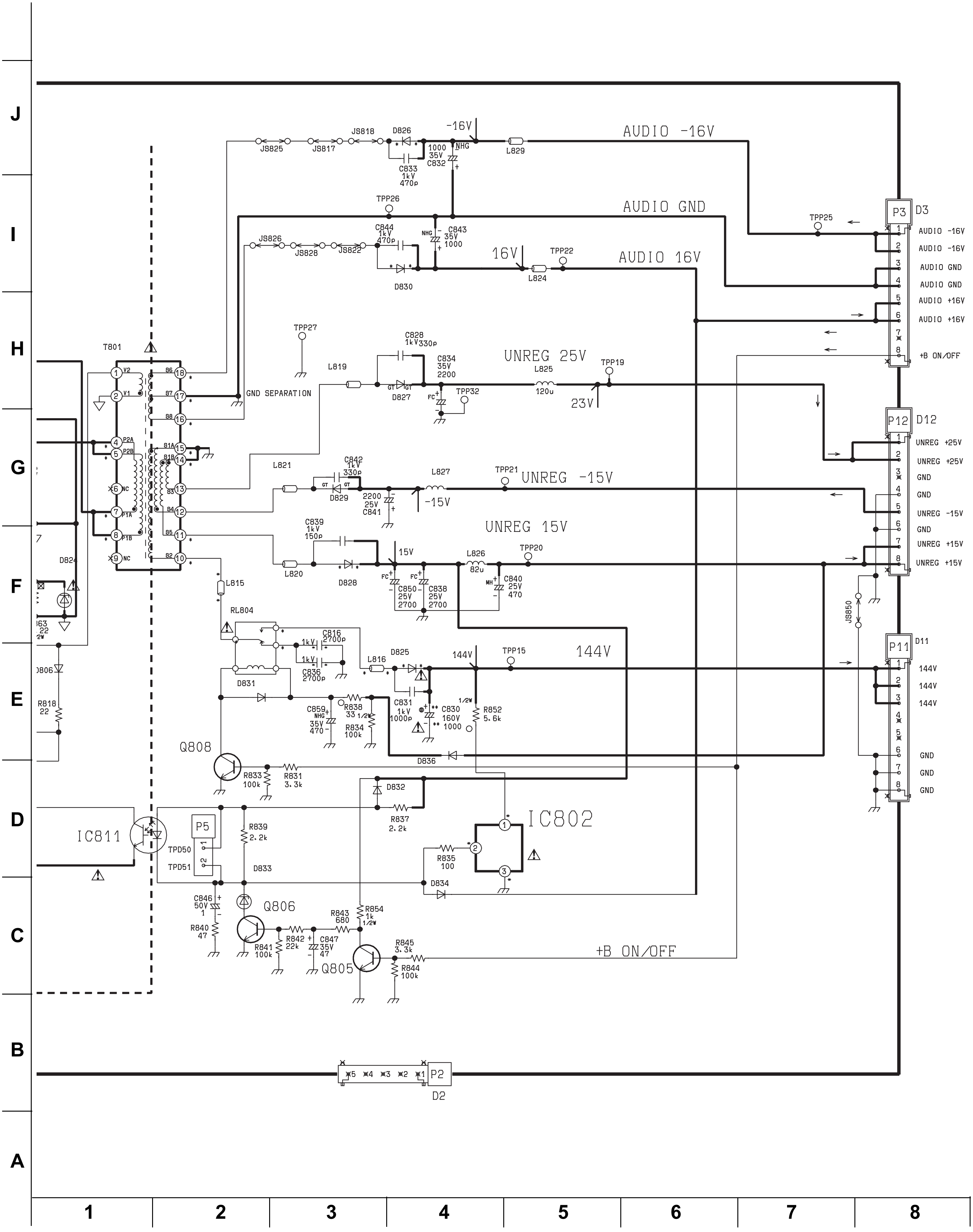
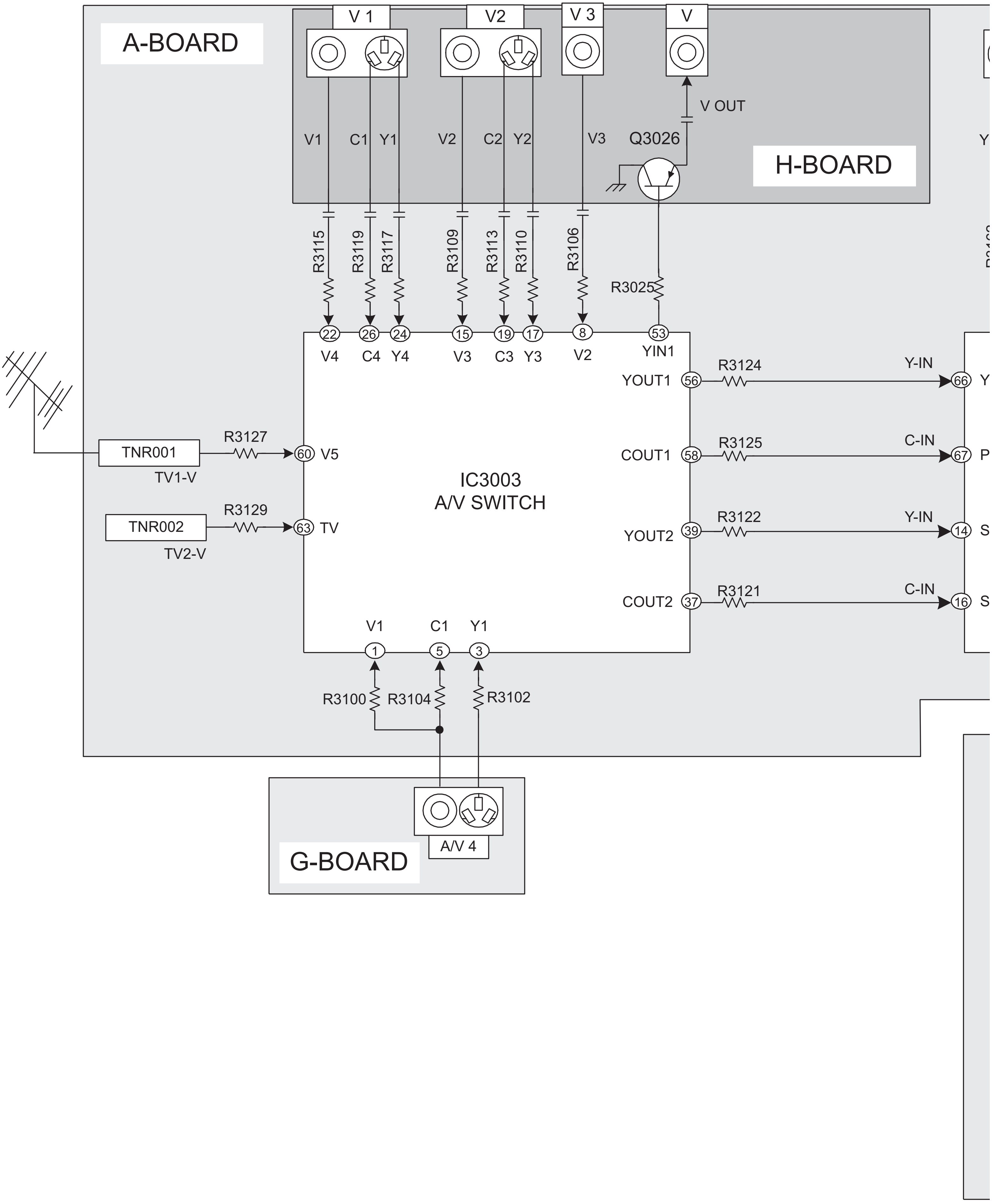
P
TNP2AA148
AC120V
D801
AC+
AC-
P1
L.F
L804
C814 AC125V 4700p
C807 AC125V 4700p
C805 AC125V 4700p
C806 AC125V 4700p
TPP6
DC_170V
C811 200V 820
C810 200V 820
TPP8
TPP13 170V
R814 22k 3W
T801
V2
V1
P2A
P2B
NC
P1A
P1B
IC801
D818
D877
L807
VCC
V REF
OVP
CURRENT SOURSE
IFB
RS LATCH
Q
R
S
V OUT
GND
CLM
FB
TDL
SIGNAL CLUMP
T OFF
Q801
D
G
S
C821 2700p 2kV
L812
R819 1/2W 82
R879 1/2W 75
R820 1/2W 12
D861
R813 1/2W 1.5k
R815 330
D824
R861 0.22 1/2W
R862 0.22 1/2W
R863 0.22 1/2W
D862
C817 3300p
R824 15k
C809 0.033
D876
R825 100k
C822 0.039
D802
C808 1000p
R817 1.37k 1%
C823 2200p
R828 10k
C819 220p
D806
R818 22
C820 NHG 220 25V
R816 470
C827 0.033
IC811
HOT
COLD

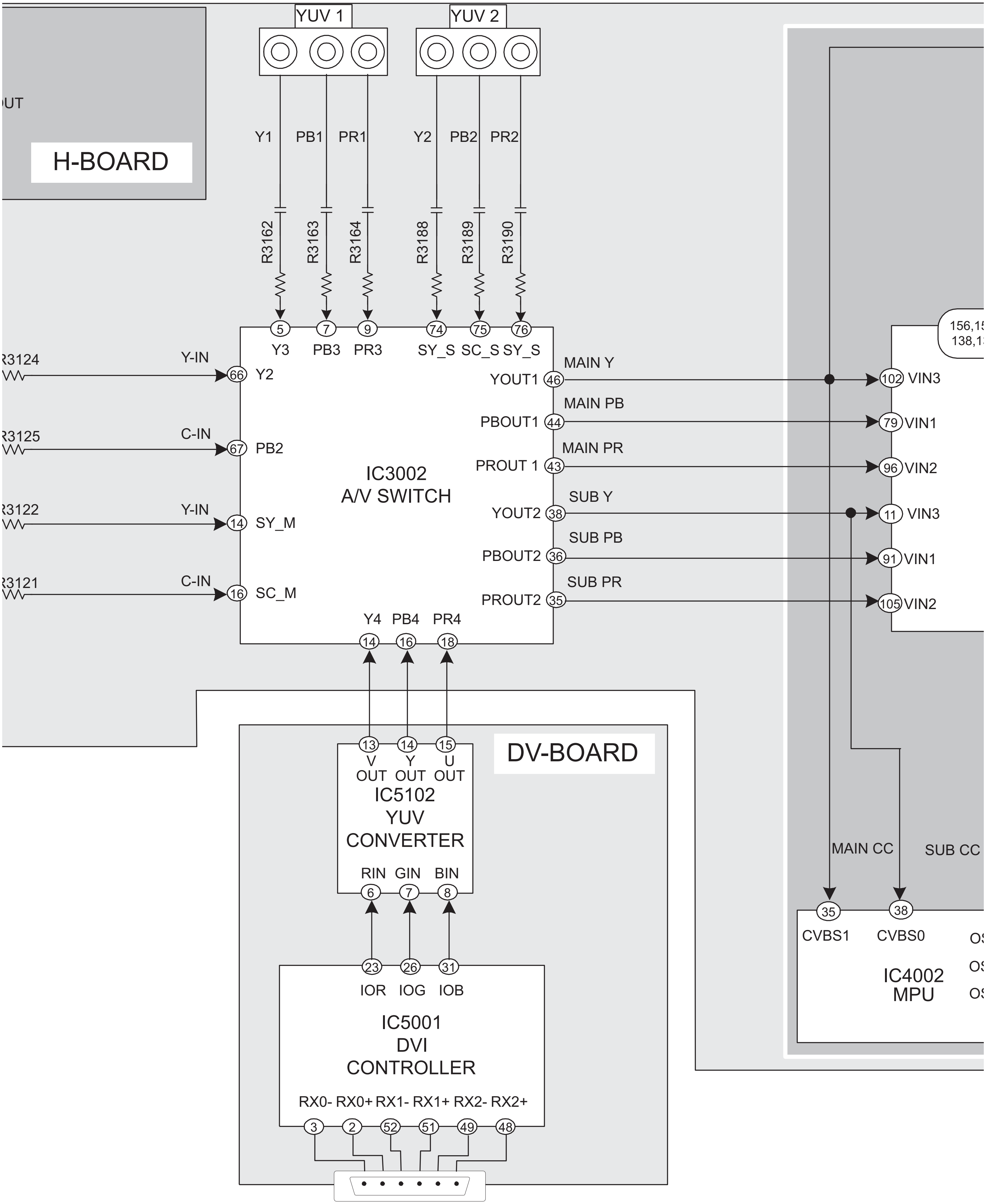
L-BOARD 1/2 TNP2AA148 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



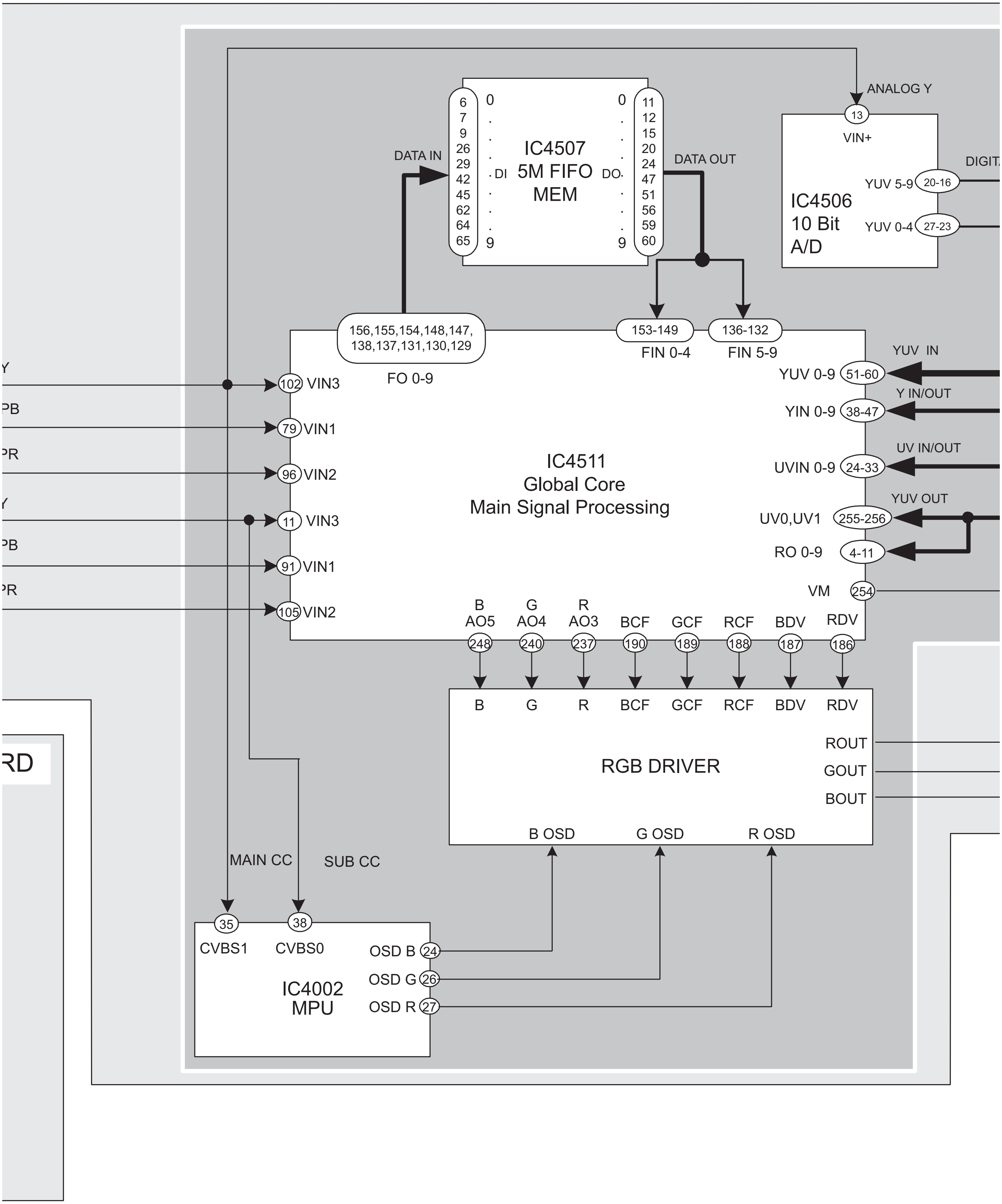
J
I
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
AUDIO -16V
-16V
JS825
JS817
JS818
D826
1000 35V C832
NHG
C833 1kV 470p
L829
AUDIO GND
TPP26
C844 1kV 470p
C843 35V 1000
JS826
JS828
JS822
D830
16V
TPP22
L824
AUDIO 16V
P3
D3
TPP25
AUDIO -16V
AUDIO -16V
AUDIO GND
AUDIO GND
AUDIO +16V
AUDIO +16V
+B ON/OFF
TPP27
T801
C828 1kV 330p
L819
C834 35V 2200
UNREG 25V
L825 120u
TPP19
GND SEPARATION
D827
TPP32
23V
P12
D12
UNREG +25V
UNREG +25V
GND
GND
UNREG -15V
GND
UNREG +15V
UNREG +15V
L821
C842 1kV 330p
L827
TPP21
UNREG -15V
D829
2200 25V C841
-15V
C839 1kV 150p
UNREG 15V
15V
L826 82u
TPP20
L820
D828
C850 25V 2700
C838 25V 2700
C840 25V 470
L815
RL804
C816 2700p
C836 2700p
JS850
P11
D11
144V
144V
144V
144V
GND
GND
GND
L816
D825
144V
TPP15
D831
C831 1kV 1000p
C830 160V 1000
R852 5.6k
C859 35V 470
R838 33
R834 100k
Q808
D836
R833 100k
R831 3.3k
D832
R837 2.2k
IC802
IC811
P5
TPD50
TPD51
R839 2.2k
D833
R835 100
D834
C846 50V 1
R840 47
Q806
R841 100k
R842 22k
R843 680
C847 35V 47
R854 1k 1/2W
Q805
R845 3.3k
R844 100k
+B ON/OFF
P2
D2
D824
D806
R818 22


A-BOARD
H-BOARD
G-BOARD
V 1
V2
V 3
V
V OUT
V1
C1
Y1
V2
C2
Y2
V3
Q3026
R3115
R3119
R3117
R3109
R3113
R3110
R3106
R3025
22
26
24
15
19
17
8
53
V4
C4
Y4
V3
C3
Y3
V2
YIN1
YOUT1
56
R3124
Y-IN
66
Y
COUT1
58
R3125
C-IN
67
P
YOUT2
39
R3122
Y-IN
14
S
COUT2
37
R3121
C-IN
16
S
IC3003
A/V SWITCH
TNR001
TV1-V
R3127
60
V5
TNR002
TV2-V
R3129
63
TV
V1
C1
Y1
1
5
3
R3100
R3104
R3102
A/V 4

VIDEO BLOCK DIAGRAM 1/4 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG

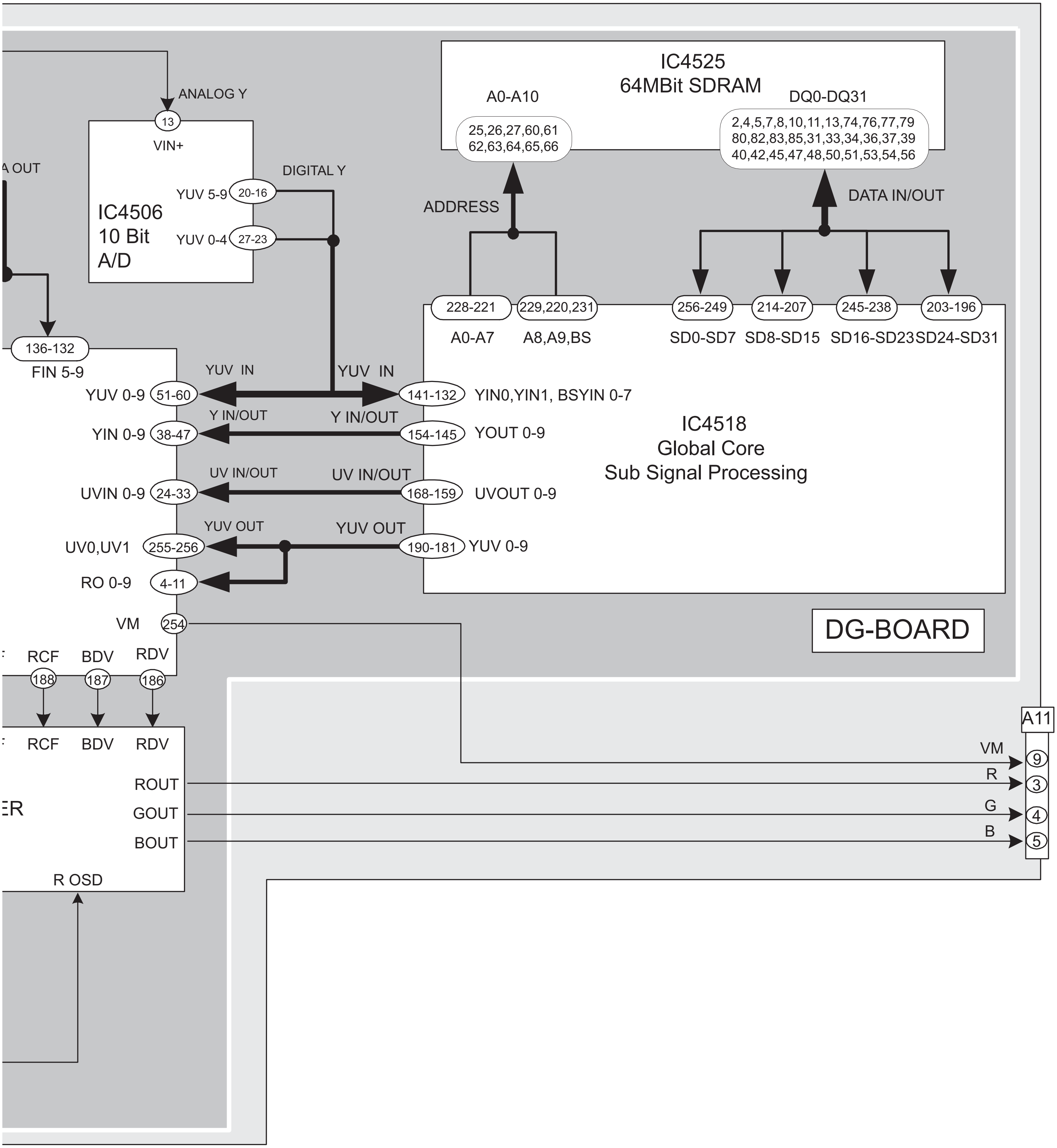

YUV 1
YUV 2
H-BOARD
Y1
PB1
PR1
Y2
PB2
PR2
R3162
R3163
R3164
R3188
R3189
R3190
5
7
9
74
75
76
Y3
PB3
PR3
SY_S
SC_S
SY_S
R3124
Y-IN
66
Y2
R3125
C-IN
67
PB2
R3122
Y-IN
14
SY_M
R3121
C-IN
16
SC_M
IC3002
A/V SWITCH
MAIN Y
YOUT1
46
MAIN PB
PBOUT1
44
MAIN PR
PROUT 1
43
SUB Y
YOUT2
38
SUB PB
PBOUT2
36
SUB PR
PROUT2
35
Y4
PB4
PR4
14
16
18
102
VIN3
79
VIN1
96
VIN2
11
VIN3
91
VIN1
105
VIN2
DV-BOARD
13
14
15
V OUT
Y OUT
U OUT
IC5102
YUV
CONVERTER
RIN
GIN
BIN
6
7
8
23
26
31
IOR
IOG
IOB
IC5001
DVI
CONTROLLER
RX0-
RX0+
RX1-
RX1+
RX2-
RX2+
3
2
52
51
49
48
MAIN CC
SUB CC
35
38
CVBS1
CVBS0
IC4002
MPU

VIDEO BLOCK DIAGRAM 2/4 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



ANALOG Y
13
VIN+
DIGIT
IC4506
10 Bit
A/D
YUV 5-9 20-16
YUV 0-4 27-23
IC4507
5M FIFO
MEM
DATA IN
DATA OUT
DI
DO
0
9
6 7 9 26 29 42 45 62 64 65
11 12 15 20 24 47 51 56 59 60
156,155,154,148,147,
138,137,131,130,129
FO 0-9
153-149
FIN 0-4
136-132
FIN 5-9
Y
PB
PR
102 VIN3
79 VIN1
96 VIN2
11 VIN3
91 VIN1
105 VIN2
IC4511
Global Core
Main Signal Processing
YUV IN
YUV 0-9 51-60
Y IN/OUT
YIN 0-9 38-47
UV IN/OUT
UVIN 0-9 24-33
YUV OUT
UV0,UV1 255-256
RO 0-9 4-11
VM 254
B AO5 248
G AO4 240
R AO3 237
BCF 190
GCF 189
RCF 188
BDV 187
RDV 186
RGB DRIVER
B G R BCF GCF RCF BDV RDV
ROUT
GOUT
BOUT
B OSD
G OSD
R OSD
RD
MAIN CC
SUB CC
IC4002
MPU
35 CVBS1
38 CVBS0
OSD B 24
OSD G 26
OSD R 27

VIDEO BLOCK DIAGRAM 3/4 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG



IC4525
64MBit SDRAM
A0-A10
25,26,27,60,61
62,63,64,65,66
DQ0-DQ31
2,4,5,7,8,10,11,13,74,76,77,79
80,82,83,85,31,33,34,36,37,39
40,42,45,47,48,50,51,53,54,56
ADDRESS
DATA IN/OUT
ANALOG Y
13
VIN+
A OUT
IC4506
10 Bit
A/D
YUV 5-9
20-16
YUV 0-4
27-23
DIGITAL Y
228-221
229,220,231
256-249
214-207
245-238
203-196
A0-A7
A8,A9,BS
SD0-SD7
SD8-SD15
SD16-SD23
SD24-SD31
136-132
FIN 5-9
YUV IN
YUV IN
YUV 0-9
51-60
141-132
YIN0,YIN1, BSYIN 0-7
Y IN/OUT
Y IN/OUT
YIN 0-9
38-47
154-145
YOUT 0-9
IC4518
Global Core
Sub Signal Processing
UV IN/OUT
UV IN/OUT
UVIN 0-9
24-33
168-159
UVOUT 0-9
YUV OUT
YUV OUT
UV0,UV1
255-256
190-181
YUV 0-9
RO 0-9
4-11
VM
254
DG-BOARD
RCF
BDV
RDV
188
187
186
RCF
BDV
RDV
ROUT
ER
GOUT
BOUT
R OSD
A11
VM
9
R
3
G
4
B
5

VIDEO BLOCK DIAGRAM 4/4 CT-36HL43G/UG, CT-32HL43G/UG, CT-32HXC43UG

A - BOARD - TNP2AH050/AB

IC3002			
1	5.22	41	4.58
2	4.90	42	0.00
3	4.90	43	4.56
4	0.00	44	4.56
5	4.74	45	0.00
6	0.00	46	4.57
7	4.76	47	9.14
8	5.10	48	4.79
9	4.76	49	0.00
10	0.39	50	4.78
11	4.56	51	5.10
12	4.56	52	4.78
13	0.00	53	0.45
14	4.76	54	4.56
15	0.00	55	4.56
16	4.77	56	0.00
17	5.09	57	4.76
18	4.77	58	0.00
19	0.40	59	4.75
20	4.56	60	5.10
21	4.56	61	4.76
22	0.00	62	0.48
23	4.59	63	0.00
24	4.59	64	4.56
25	0.00	65	0.00
26	4.62	66	0.00
27	4.63	67	4.74
28	0.00	68	0.00
29	0.00	69	0.00
30	4.62	70	4.56
31	9.14	71	4.56
32	4.60	72	0.00
33	4.60	73	0.00
34	0.00	74	4.76
35	4.55	75	4.76
36	4.55	76	4.75
37	0.00	77	0.00
38	4.56	78	4.56
39	4.56	79	4.56
40	4.56	80	0.00

IC3003			
1	4.00	33	4.80
2	4.56	34	4.80
3	4.00	35	0.00
4	4.56	36	0.00
5	4.52	37	4.43
6	0.15	38	4.58
7	5.00	39	4.30
8	4.00	40	4.58
9	4.56	41	4.58
10	4.30	42	9.17
11	4.56	43	4.51
12	4.51	44	0.00
13	0.16	45	5.00
14	5.10	46	0.00
15	4.00	47	0.00
16	4.56	48	0.00
17	4.00	49	5.00
18	4.56	50	4.58
19	4.51	51	4.51
20	0.18	52	4.59
21	5.10	53	4.58
22	4.00	54	4.59
23	4.56	55	3.74
24	4.00	56	4.30
25	4.56	57	0.00
26	4.51	58	4.43
27	0.16	59	4.56
28	5.10	60	4.43
29	0.00	61	4.56
30	0.00	62	4.56
31	0.00	63	4.22
32	0.00	64	4.56

IC872	
1	15.87
2	2.83
3	0.00
4	1.24
5	6.75

IC875	
1	27.34
2	9.42
3	0.00
4	1.24
5	6.74

IC2451			
1	4.57	16	9.18
2	4.63	17	4.78
3	4.62	18	0.00
4	4.58	19	3.97
5	4.58	20	3.97
6	4.62	21	4.57
7	4.62	22	4.63
8	4.62	23	4.62
9	1.38	24	4.62
10	4.62	25	4.62
11	1.67	26	4.60
12	1.67	27	4.60
13	4.90	28	4.60
14	4.90	29	4.63
15	0.00	30	4.57

IC2201			
1	0.00	13	3.58
2	0.00	14	2.19
3	0.00	15	3.57
4	2.29	16	3.66
5	2.19	17	0.00
6	0.33	18	4.90
7	5.12	19	4.90
8	2.23	20	0.00
9	2.40	21	2.21
10	0.43	22	2.21
11	2.25	23	0.00
12	3.43	24	0.00

IC1004	
1	0.00
2	0.00
3	0.00
4	0.00
5	2.17
6	0.00
7	0.00
8	3.32

IC871	
1	15.87
2	5.41
3	0.00
4	1.24
5	6.77

IC2302	
1	-16.97
2	-16.97
3	-0.13
4	17.03
5	9.25
6	5.17
7	0.00
8	2.55
9	0.00
10	0.00
11	0.00
12	5.23
13	0.00
14	-15.74
15	0.00
16	-5.43
17	0.00
18	0.00
19	0.00
20	0.00
21	9.20
22	17.03
23	0.00
24	-16.97
25	-6.54

IC4803	
1	5.53
2	3.67
3	3.68
4	0.00
5	2.78
6	2.78
7	5.60
8	5.60
9	11.86

A - BOARD - TNP2AH050/AB

	Q007	Q802	Q803	Q880	Q2301	Q2302
B	0.71	0.71	0.00	3.32	15.92	15.92
E	0.00	0.00	0.00	3.32	10.90	10.90
C	0.00	0.00	15.91	-1.13	0.27	-0.12

	Q2304	Q2306	Q2307	Q2336	Q2337	Q2338
B	0.00	-0.11	0.00	0.00	0.00	0.00
E	0.00	0.00	-0.30	-0.13	-0.15	0.00
C	15.92	5.18	0.00	-0.14	15.91	-0.12

	Q2339	Q2340	Q2451	Q2452
B	0.00	0.00	4.60	4.60
E	-0.17	-0.18	3.97	3.96
C	5.94	-1.12	9.18	9.18

D - BOARD - TNPH0466AE

IC451	
1	0.00
2	-16.35
3	0.00
4	15.55
5	1.30
6	1.30
7	16.00
8	-14.68
9	15.84
10	-14.67

IC500	
1	142.6
2	142.6
3	143.8
4	143.9
5	137.5
6	143.9
7	143.9
8	150.0
9	149.7
10	150.5

IC511	
1	3.76
2	3.22
3	3.23
4	0.00
5	0.00
6	0.00
7	0.36
8	11.87

IC751	
1	3.97
2	7.10
3	5.54
4	0.00
5	1.50
6	0.64
7	9.47
8	11.87

IC1501	
1	0.00
2	5.90
3	5.16
4	0.00
5	4.68
6	4.80
7	0.63
8	11.87

IC752	
1	11.87
2	3.97
3	0.00
4	0.00
5	0.00
6	29.66
7	33.52
8	42.00

IC876	
1	16.02
2	11.88
3	0.00
4	16.02

D - BOARD - TNPH0466AE

	Q404	Q405	Q406	Q503	Q509	Q510	Q512	Q513
B	0.69	16.00	0.60	0.00	43.20	48.91	5.74	0.28
E	0.00	16.40	0.00	0.00	48.70	48.23	5.82	0.00
C	0.16	0.00	0.00	11.86	143.40	143.40	11.87	5.74

	Q551	Q562	Q752	Q754	Q804	Q854	Q860	Q861
B	0.00	3.76	1.41	-0.44	27.51	143.50	0.00	0.61
E	0.00	3.22	0.82	0.00	27.81	143.80	0.00	0.00
C	-102.20	126.30	5.55	7.05	0.00	0.00	0.63	0.00

	Q862	Q1503	Q1504	Q1505	Q1506
B	-0.56	18.97	2.22	4.55	0.38
E	0.00	18.47	1.64	4.61	0.00
C	0.63	266.2	18.47	11.87	4.56

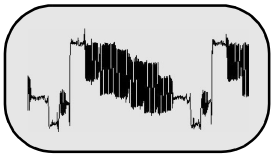
	Q502	Q751	Q755	Q1501	Q1502
G	11.87	9.46	33.50	4.62	11.87
D	0.00	0.00	33.10	62.60	0.00
S	0.00	0.00	29.70	0.00	0.00

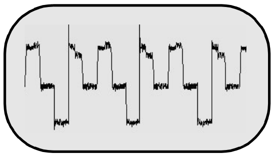
L - BOARD - TNP2AA139

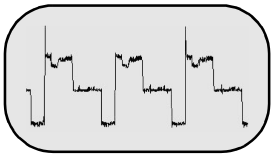
	IC3801	IC3802	IC3803	IC901	IC4905
1	6.66	6.68	6.70	1.38	4.55
2	0.00	0.00	0.00	2.97	4.55
3	2.44	2.49	2.48	0.70	4.54
4	0.00	0.00	0.00	11.69	0.16
5	4.35	4.19	3.82	0.00	4.54
6	210.80	210.80	210.80	0.00	0.21
7	21.53	21.58	21.47	0.19	0.00
8	144.50	140.40	142.00	69.00	4.56
9	0.00	0.00	0.00	69.00	0.00
10				141.00	4.88
11				141.00	4.88
12					9.21
13					4.56
14					4.56
15					4.53
16					4.56
17					4.53
18					4.56

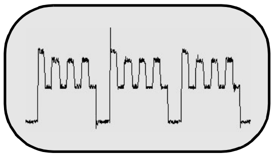
	IC4904
1	14.61
2	14.61
3	0.30
4	0.30
5	-16.37
6	2.82
7	2.83
8	2.83
9	2.83
10	15.96

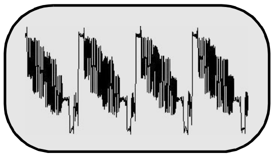
A-Board TNP2AH050/AB

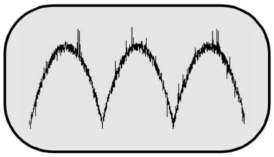

① **1.00 Vp-p**
TNR001 (MAIN VIDEO)

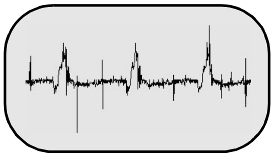

② **2.88 Vp-p**
A11 PIN 3 (RED OUT)

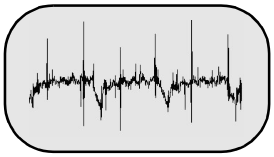

③ **2.88 Vp-p**
A11 PIN 4 (GREEN OUT)

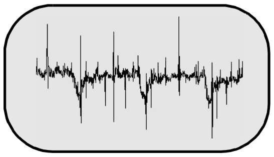

④ **2.88 Vp-p**
A11 PIN 5 (BLUE OUT)

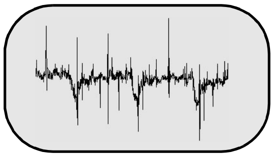

⑤ **2.06 Vp-p**
A22 PIN 17 (MAIN Y)

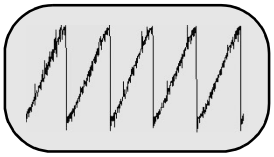

⑥ **0.80 Vp-p**
A23 PIN 1 (V-DAF)

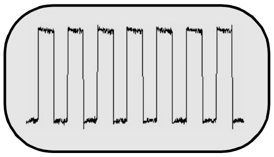

⑦ **0.37 Vp-p**
A23 PIN 2 (ABL)

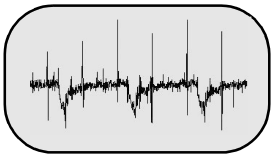

⑧ **0.15 Vp-p**
A23 PIN 3 (HHS REF)

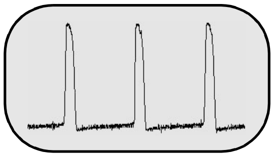

⑨ **0.12 Vp-p**
A23 PIN 7 (MOMENT BSW)

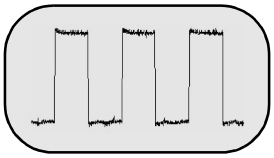

⑩ **0.13 Vp-p**
A23 PIN 10 (V_RASTER)

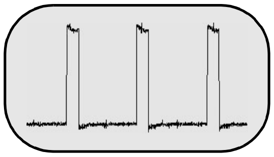

⑪ **0.86 Vp-p**
A23 PIN 13 (V_DRIVE)

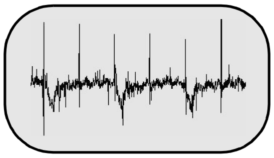

⑫ **3.36 Vp-p**
A23 PIN 30 (H_DAF)


⑬ **0.11 Vp-p**
A23 PIN 29 (EHT DET)

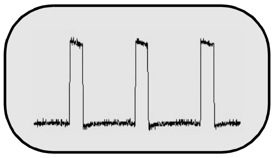

⑭ **3.8 Vp-p**
A23 PIN 28 (FBP)


⑮ **3.4 Vp-p**
A23 PIN 27 (H DRIVE)

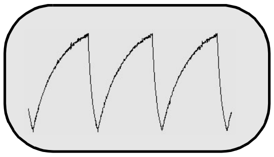

⑯ **3.4 Vp-p**
A23 PIN 26 (EW DRIVE)


⑰ **0.11 Vp-p**
A23 PIN 25 (H RASTER)

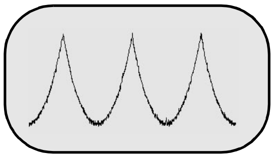
D-Board TNPH0466AE



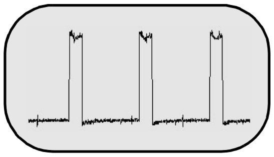
① **12.6 Vp-p**
IC751 PIN 1



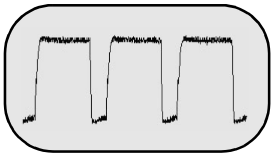
② **9.12 Vp-p**
IC751 PIN 2



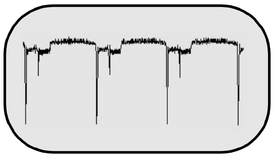
③ **5.92 Vp-p**
IC751 PIN 3



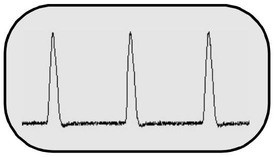
④ **3.44 Vp-p**
IC751 PIN 6



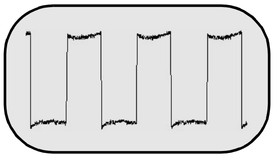
⑤ **12.4 Vp-p**
IC751 PIN 7



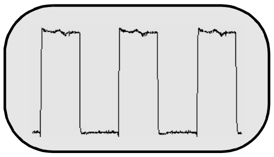
⑥ **14.0 Vp-p**
Q551-B



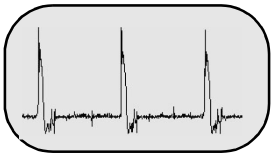
⑦ **1.56 KVp-p**
Q551-C



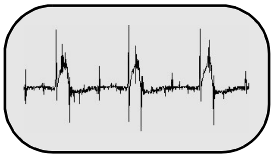
⑧ **20.4 Vp-p**
Q501-D



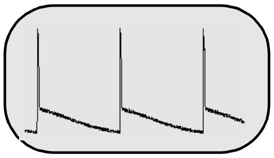
⑨ **11.5 Vp-p**
Q501-G



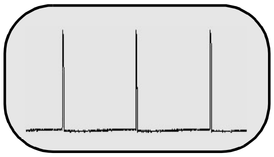
⑩ **3.4 Vp-p**
Q502-D



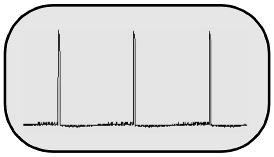
⑪ **0.82 Vp-p**
Q502-G



⑫ **84.0 Vp-p**
IC451 PIN 3



⑬ **64.8 Vp-p**
IC451 PIN 4



⑭ **31.6 Vp-p**
IC451 PIN 8